STEM PROJECTS

Linked to the Early Years Foundation Stage and National Curriculum for England

41473

Prim-Ed Publishing

These tables provide suggested links to the Early Years Foundation Stage curriculum for England.

EYFS	Biological Sciences		
Card	**Task**	**Suggested Materials**	**Early Years Outcomes Links**
1. Pet Cushion	Design and make an indoor pet cushion for a small dog or cat.	1 plastic weaving needle, thread or wool, fabric, cushion filling.	**UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using
2. Miniature Worm Farm	Design and make a miniature worm farm.	1 plastic, transparent storage container; 15 worms; soil; small pebbles; 1 dark covering and dark lid; food scraps.	**UTW-40/60-TW1** – look closely at similarities, differences, patterns and change **UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-§EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10 –** selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-N5** – counts objects to ten and begins to count beyond ten
3. Bird Feeder	Design and make a bird feeder for wild birds.	Recycled materials, 1 cup birdseed, 10 marbles, rope or string, water.	**UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-N5** – counts objects to ten and begins to count beyond ten

4. Self-watering Pot Plant	Design and make a self-watering pot plant so the soil is always damp.	Pre-cut 2-litre plastic bottle, 3 cups of soil, 3 cups of water, 1 seedling, 1 stocking leg.	**UTW-40/60-TW1** – look closely at similarities, differences, patterns and change **UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-N5** – counts objects to ten and begins to count beyond ten
5. Living Grass Hut	Design and make a hut that grows grass on the walls and roof.	Sponges, toothpicks, grass seeds, water spray bottle.	**UTW-40/60-TW1** – look closely at similarities, differences, patterns and change **UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-SS&M6** – uses familiar objects and common shapes to create and recreate patterns and build models
6. Rug Tent	Design and make a tent that keeps humans safe from the sun and wind.	1 rug or blanket; rope; chairs, sticks, brooms; blocks.	**UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using
7. Class Fruit and Vegetable Garden	Design and make a garden bed to add to a class fruit and vegetable garden, providing healthy snacks for playtime.	1 garden bed or large plastic tub, soil, seedlings, hose for watering, gardening tools.	**UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately

EYFS	Chemical Sciences		
Card	**Task**	**Suggested Materials**	**Early Years Outcomes Links**
1. Rope Bridge	Design and make a model of a rope bridge that hangs between two cliffs.	Craft sticks, string, 10 toy farm animals, 2 desks.	**UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-N5** – counts objects to ten and begins to count beyond ten
2. Pirate Ship	Design and make a pirate ship that floats in water.	Recycled materials, 10 people figurines, water tray.	**UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-N5** – counts objects to ten and begins to count beyond ten **M-40/60-SS&M6** – uses familiar objects and common shapes to create and recreate patterns and build models
3. Mud Hut	Design and make a model of a mud hut-style house.	1 paper plate; air-dry clay/ plasticine/playdough; toothpicks; fan.	**UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-SS&M1** – begins to use mathematical names for 'solid' 3-D shapes **M-40/60-SS&M2** – selects a particular named shape **M-40/60-SS&M6** – uses familiar objects and common shapes to create and recreate patterns and build models

4. Plastic Poncho	Design and make a poncho that keeps you dry when it's raining.	Plastic tablecloth, sticky tape, hose or watering can to create rain.	**EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using
5. Newspaper Hat	Design and make a broad-brimmed hat for each group member using newspaper.	Newspaper, sticky tape.	**UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-N5** – counts objects to ten and begins to count beyond ten
6. Ice Cube Igloo	Design and make a small igloo using ice cubes.	Ice cubes, plastic plate, person figurine.	**UTW-40/60-TW1** – look closely at similarities, differences, patterns and change **UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-N5** – counts objects to ten and begins to count beyond ten **M-40/60-SS&M6** – uses familiar objects and common shapes to create and recreate patterns and build models
7. Class Lego™ Land	Design and make a strong Lego™ house to add to a class Lego™ Land.	Lego™, A4 piece of paper, glue stick.	**EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-SS&M6** – uses familiar objects and common shapes to create and recreate patterns and build models

EYFS	Environmental Sciences		
Card	**Task**	**Suggested Materials**	**Early Years Outcomes Links**
1. Wellington Boots	Design and make Wellington boots that keep your feet dry while jumping in puddles.	Tape, waterproof materials.	**UTW-40/60-TW1** – look closely at similarities, differences, patterns and change **UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using
2. Summer Sandcastle	Design and make a sandcastle that could be made at the beach on a hot summer's day.	Sandpit, sandpit equipment, water, digital camera or tablet computer.	**UTW-40/60-TW1** – look closely at similarities, differences, patterns and change **UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-N5** – counts objects to ten and begins to count beyond ten **M-40/60-SS&M6** – uses familiar objects and common shapes to create and recreate patterns and build models
3. Umbrella	Design and make an umbrella that keeps you dry when it's raining.	Recycled materials, waterproof materials, hose to make rain, digital camera or tablet computer.	**UTW-40/60-TW1** – look closely at similarities, differences, patterns and change **UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using

4. Sleeping Masks	Design and make a set of sleeping masks that let you sleep in darkness during the day.	Scrap fabric, elastic, plastic weaving needle, tape.	**EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using
5. Spring Flowerpots	Design and make a set of flowerpots that show different types of flowers during spring.	Plasticine, coloured pipe cleaners, Unifix™ cubes.	**UTW-40/60-TW1** – look closely at similarities, differences, patterns and change **UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-N5** – counts objects to ten and begins to count beyond ten **M-40/60-SS&M6** – uses familiar objects and common shapes to create and recreate patterns and build models
6. Water Slides	Design and make a water slide that carries two people figurines safely down the slide and into a small pool.	Recycled materials, waterproof materials, 2 people figurines, water.	**UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-N5** – counts objects to ten and begins to count beyond ten
7. Seasonal Fashion Show	Design and make an outfit for a season of your choice. Model your outfit at a class fashion show.	Newspaper, tape.	**UTW-40/60-TW1** – look closely at similarities, differences, patterns and change **UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using

EYFS	Physical Sciences		
Card	**Task**	**Suggested Materials**	**Early Years Outcomes Links**
1. Spinning Top	Design and make a spinning top using craft materials.	Cereal box; paper; matchstick or a pencil; circle stencil or plastic cup; plasticine or playdough.	**UTW-40/60-TW1** – look closely at similarities, differences, patterns and change **UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-N5** – counts objects to ten and begins to count beyond ten **M-40/60-SS&M6** – uses familiar objects and common shapes to create and recreate patterns and build models
2. Balloon Rocket	Design and make a rocket that flies using air power from a balloon.	Cardboard tube, paper, string, balloon, straws, sticky tape.	**UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using
3. Marble Maze Game	Design and make a cardboard maze game that works by tilting a box.	Cereal box, craft sticks, marble, sticky tape, art and craft materials (including paint).	**UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using
4. Zip Line	Design and make a zip line with a carriage that slides down the zip line.	Fishing line or thin twine, tape, paper clips, 5 marbles, recycled materials, one-metre ruler.	**UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10 –** selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-N5** – counts objects to ten and begins to count beyond ten

5. Wobble-bottom Toy	Design and make a toy that wobbles on its bottom.	Plastic egg that splits in half, plasticine, craft materials.	**EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using
6. Marionette	Design and make a cardboard person that you can control like a marionette.	Cardboard, split pins, straws, string, pencils, digital camera or tablet computer.	**UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-N5** – counts objects to ten and begins to count beyond ten
7. Pinball Machine	Design and make a pinball machine out of recycled materials (like an obstacle course).	Cardboard cereal box, cardboard, craft sticks, marble, table tennis ball, small rubber bouncy ball, masking tape.	**UTW-40/60-T2** – interacts with age-appropriate computer software **EA&D-40/60-EMM7** – constructs with a purpose in mind, using a variety of resources **EA&D-40/60-EMM8** – uses simple tools and techniques competently and appropriately **EA&D-40/60-EMM10** – selects tools and techniques needed to shape, assemble and join materials they are using **M-40/60-N5** – counts objects to ten and begins to count beyond ten

The following codes have been used in the *Early Years Outcomes Links* column of the tables to keep the tables compact:

Early Years Outcomes Subjects:
UTW – Understanding the World
EA&D – Expressive Arts and Design
M – Mathematics

Age Ranges/Year Groups:
40/60 – 40-60+ months

Understanding the World Outcomes:
TW – The World
T – Technology

Expressive Arts and Design Outcomes:
EMM – Exploring and Using Media and Materials

Mathematics Outcomes:
N – Numbers
SS&M – Shape, Space and Measures

The number after each code refers to the position of the bullet-pointed curriculum objective within that section.

These tables provide suggested links to the Year 1 programmes of study in the national curriculum for England.

Year 1	Biological Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Giant Panda Enclosure	Design and make a model of a zoo enclosure for a giant panda.	A3 piece of cardboard; clay, plasticine or playdough; art straws, art and craft materials.	**SC-Y1-AIH3** – describe and compare the structure of a variety of common animals **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria
2. Owl Mask	Design and make an owl mask with binocular vision.	2 short cardboard tubes, empty cereal boxes, elastic, paint, feathers.	**SC-Y1-AIH3** – describe and compare the structure of a variety of common animals **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria

3. Hermit Crab Home	Design and make a home for a hermit crab that caters for its needs.	1 medium-sized rectangular plastic tub, water, sand, twigs leaves, rocks.	**SC-Y1-AIH3** – describe and compare the structure of a variety of common animals **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria
4. Triple Salad	Design and make a salad using three different ingredients.	Salad ingredients, chopping board, vegetable knife, grater, small paper plate, digital camera or tablet computer.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **D&T-KS1-9** – use the basic principles of a healthy and varied diet to prepare dishes **D&T-KS1-10** – understand where food comes from

5. Bird Table Model	Design and make a model bird table to make sure birds get enough food over winter.	Cardboard, small plastic bowl, wooden craft sticks, cardboard tube, net.	**SC-Y1-AIH3** – describe and compare the structure of a variety of common animals **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria
6. Human Movement Video	Design and make a video that names and demonstrates different types of human movement.	1 digital camera or tablet computer, play equipment, grassed area.	**SC-Y1-AIH4** – identify, name, draw and label the basic parts of the human body **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content
7. Class Farmyard	Design and make a papier mâché farm paddock to add to a class farmyard scene. The class farmyard scene must have a different type of farm animal in each paddock.	1 A3-sized piece of thick cardboard, newspaper, PVA glue mix, paint, plastic farmyard animals.	**SC-Y1-AIH3** – describe and compare the structure of a variety of common animals **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria

Year 1	Chemical Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Aluminium Foil Tower	Design and create a model of the Eiffel Tower using aluminium foil.	Aluminium foil, 1-metre ruler, 5 people figurines.	**SC-KS1-WS3** – perform simple tests **SC-Y1-EM3** – describe the simple physical properties of a variety of everyday materials **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y1-M2** – measure and begin to record length, height and time
2. Bubble Wands	Design and create a set of bubble wands to blow bubbles with.	Pipe cleaners, wooden skewer, bucket, water, dishwashing liquid.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y1-G1** – recognise and name common 2-D shapes

3. Newspaper Table	Design and create a table made from newspaper and masking tape.	Newspaper, masking tape, 30 cm ruler, 5 reading books.	**SC-KS1-WS3** – perform simple tests **SC-Y1-EM3** – describe the simple physical properties of a variety of everyday materials **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y1-M2** – measure and begin to record length and height
4. Noughts-and-crosses	Design and create a game of noughts-and-crosses.	Salt dough, plastic knives; oven, cardboard, art and craft materials.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5 –** explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria

5. Sensory Bottles	Design and create three sensory bottles at different temperatures.	3 x 600-ml plastic bottles, water, food colouring, olive oil, decorations, fridge, freezer.	**SC-KS1-WS3** – perform simple tests **SC-KS1-WS4** – identify and classify **SC-Y1-EM4** – compare and group together a variety of everyday materials on the basis of their simple physical properties **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products
6. Chocolate Fondue	Design and create a dessert made of chocolate fondue and fresh strawberries and bananas.	Chocolate, strawberries, bananas, microwave or tea light candle (Teacher), microwave-safe or flame-safe bowl, plastic plate, chopping board, plastic knife.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **D&T-KS1-9** – understand the basic principles of a healthy and varied diet to prepare dishes **D&T-KS1-10** – understand where food comes from
7. Class Paper Plane Contest	Design and create a paper aeroplane. Hold a class contest to see which plane travels the furthest.	A4 piece of paper.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria

Year 1	Environmental Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Day and Night Storyboard	Design and make a storyboard that has a day and night scene.	Art and craft materials, A3 piece of cardboard, scissors, digital camera or tablet computer.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria
2. Constellations	Design and make three star constellations.	Small marshmallows, raw spaghetti, ruler.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y1-M2** – measure and begin to record length and height

3. Snow Globe	Design and make a snow globe in a jar.	Cylindrical glass jar, plasticine, water, white glitter.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y1-M2** – measure and begin to record length and height
4. Model Tree House	Design and make a model tree house sitting in a tree.	Cardboard tubes, tissue paper, craft sticks, tape, 5 people figurines.	**SC-KS1-WS3** – perform simple tests **SC-Y1-EM3** – describe the simple physical properties of a variety of everyday materials **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y1-M2** – measure and begin to record length and height

5. Miniature Zen Garden	Design and make a miniature Zen garden.	Moveable surface (30 cm long x 20 cm wide), natural materials, art and craft materials.	**SC-Y1-EM3** – describe the simple physical properties of a variety of everyday materials **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y1-M2** – measure and begin to record length and height
6. National Park	Design and make a model of a national park using air dry clay.	Air-dry clay, plastic knife, wooden skewer, paint.	**SC-Y1-EM3** – describe the simple physical properties of a variety of everyday materials **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria
7. Daily Weather Report	Design and make a daily weather report for each day of the week. Show your report at the end of each day on an interactive whiteboard or computer screen.	Measuring jug, digital camera or tablet computer, timer, computer.	**SC-Y1-SCh2** – observe and describe weather associated with the seasons **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **M-Y1-M2** – measure and begin to record capacity and time

Year 1	Physical Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Stained Glass Window	Design and make a model of a stained glass window that uses sunlight to shine coloured shapes into the classroom.	Art and craft materials, black card, coloured tissue paper.	**SC-KS1-WS3** – perform simple tests **SC-KS1-WS4** – identify and classify **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y1-G1** – recognise and name common 2-D shapes
2. Candle Holder	Design and make a candle holder that keeps people safe from the flame and the hot wax.	Glass jar, art and craft materials, one tea light candle, timer or clock.	**SC-KS1-WS3** – perform simple tests **SC-KS1-WS4** – identify and classify **SC-Y1-EM4** – compare and group together a variety of everyday materials on the basis of their simple physical properties **SC-Y1-EM3** – describe the simple physical properties of a variety of everyday materials **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y1-M2** – measure and begin to record time

3. Lighthouse	Design and make a working lighthouse using recycled materials.	Recycled materials, torch, 1-metre ruler, paint, reflective materials.	**SC-KS1-WS3** – perform simple tests **SC-KS1-WS4** – identify and classify **SC-Y1-EM3** – describe the simple physical properties of a variety of everyday materials **SC-Y1-EM4** – compare and group together a variety of everyday materials on the basis of their simple physical properties **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y1-M2** – measure and begin to record length and height
4. Straw Panpipes	Design and make a set of straw panpipes so each member of the group can play the panpipes for people to listen to.	Straws, art and craft materials, digital camera or tablet computer.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y1-M2** – measure and begin to record length and height

5. Stringed Instruments	Design and make a stringed instrument for each group member to make music for people to listen to.	Recycled materials, art and craft materials, string, digital camera or tablet computer.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria
6. Stormy Soundscape Performance	Design and make a soundscape of stormy weather.	Classroom materials, audio recorder.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y1-M2** – measure and begin to record time
7. Class Percussion Orchestra	Make some musical instruments that are played by striking them to create a class percussion orchestra.	Tin cans, balloons, recycled materials, jam jars, food colouring, art and craft materials.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria

The following codes have been used in the *National Curriculum Links* column of the Year 1 tables to keep the tables compact:

National Curriculum Subjects:
SC – Science
C – Computing
D&T – Design and Technology
M – Mathematics

Age Ranges/Year Groups:
KS1 – Key Stage 1
Y1 – Year 1

Science National Curriculum Subject Strands:
WS – Working Scientifically
AIH – Animals including Humans
EM – Everyday Materials
SCh – Seasonal Changes

Mathematics National Curriculum Subject Strands:
M – Measurement
G – Geometry

The number after each code refers to the position of the bullet-pointed curriculum objective **within that section.**

These tables provide suggested links to the Year 2 programmes of study in the national curriculum for England.

Year 2	Biological Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Guess Which Living Thing	Design and make a 'Guess Who?'®-style game based on animals.	Cardboard, printed images of living things, art and craft materials, scissors, craft knives.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y2-M1** – use appropriate standard units to measure length and use rulers
2. Non-living Tree	Design and make a 3-D tree from the future that is made from non-living things.	Cardboard, cellophane, crêpe paper, polystyrene foam, newspaper, glitter, plastic bottles.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y2-M1** – use appropriate standard units to measure length and use rulers

3. Bird's Nest	Design and make a nest to keep a bird's egg safe and warm.	Craft sticks, matchsticks, cotton wool, PVA glue, 1 plastic egg.	**SC-Y2-LTATH2** – identify that most living things live in habitats to which they are suited **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria
4. A Butterfly's Life Stages	Design and make a model of the three main life stages of a butterfly—egg, caterpillar and butterfly.	Salt dough, plastic cutlery, wooden skewers, paint, oven.	**SC-KS1-WS4** – identify and classify **SC-Y2-AIH1** – notice that animals, including humans, have offspring which grow into adults **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical task**s** **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria

5. Animal Matching Card Game	Design and make a card game where players match different animals with their babies.	Computer, printer, cardboard.	**SC-KS1-WS4** – identify and classify **SC-Y2-AIH1** – notice that animals, including humans, have offspring which grow into adults **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria
6. Baby Animals Calendar	Design and make a calendar showing a photograph of a different animal and its young for each month of the year.	A3 paper, computer, printer.	**SC-KS1-WS4** – identify and classify **SC-Y2-AIH1** – notice that animals, including humans, have offspring which grow into adults **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria
7. *The Life of Humans* Film	Design and make a film of how humans grow and change from birth to old age.	Digital camera or tablet computer, costumes, props, script.	**SC-KS1-WS4** – identify and classify **SC-Y2-AIH1** – notice that animals, including humans, have offspring which grow into adults **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content

Year 2	Chemical Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Crazy Kite	Design and make a crazy kite that will fly on a windy day.	Cereal box, cellophane, string, craft sticks or skewers, tape, one A4 piece of paper.	**SC-Y2-UOEM1** – identify and compare the suitability of a variety of everyday materials for particular uses **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **D&T-KS1-7** – build structures, explaining how they can be made stronger **M-Y2-G1** – identify the properties of 2-D shapes, including the number of sides
2. Cardboard Car	Design and make a cardboard toy car that is powered by a balloon.	Cardboard tubes, wooden skewers, plastic bottle lids or plastic wheels, one balloon, tape, people figurines.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **D&T-KS1-8** – explore and use mechanisms in their products

3. Baking Biscuits	Design and make simple biscuits by mixing materials together.	2 cups of self-raising flour; pinch of salt; 180 g of butter; ½ cup of sugar; 1 egg; bowl; wooden spoon; sieve; baking tray; oven.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **D&T-KS1-9** – use the basic principles of a healthy and varied diet to prepare dishes **M-Y2-M1** – use appropriate standard units to measure mass and use scales
4. Parachute Drop	Design and make a parachute that will drop carefully to the ground.	Plastic tablecloth, plastic egg, styrofoam cup, string.	**SC-KS1-WS3** – perform simple tests **SC-KS1-WS4** – identify and classify **SC-KS1-WS5** – use observations and ideas to suggest answers to questions **SC-Y2-UOEM1** – identify and compare the suitability of a variety of everyday materials for particular uses **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y2-M1** – use appropriate standard units to measure length and use rulers

5. Indonesian Stilt House	Design and make an Indonesian stilt house that can survive a flood.	Craft sticks, matchsticks or twigs; plastic covering for windows; straw; 8 people figurines; water tray; plasticine.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **D&T-KS1-7** – build structures, explaining how they can be made stronger **M-Y2-M1** – use appropriate standard units to measure length and use rulers
6. 3–D Glasses	Design and make a set of glasses that can view images in 3-D.	Cardboard, red and blue cellophane, sticky tape.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria
7. Recycled Paper Treasure Map	Design and make your own recycled paper treasure map.	Fine wire mesh screen, scrap paper, scissors, water, rubber gloves, marker pen, audio recorder, audio editor such as *Audacity*.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria

Year 2	Environmental Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Mine Pit Model	Design and make a model of a mine pit using yellow playdough.	Yellow playdough, 50 acrylic gems, 4 toy trucks, digital camera or tablet computer.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria
2. A Working Well	Design and make a model of a working well to source water.	Cardboard, bucket, plastic cup, rope, cardboard tubes, water.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **D&T-KS1-8** – explore and use mechanisms in their products **M-Y2-M1** – use appropriate standard units to measure length and use rulers

3. Material Box	Design and make a collection box to display various materials found in your local environment.	Cardboard box, cardboard pieces, plastic bottles, egg cartons, found materials.	**SC-KS1-WS4** – identify and classify **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y2-M1** – use appropriate standard units to measure length and use rulers
4. Rainwater Tank	Design and make a rainwater tank that collects clean water.	2-litre plastic bottle, materials to make a filter, hose for water.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y2-M1** – use appropriate standard units to measure capacity and use measuring vessels

5. Shoebox Solar Oven	Design and make a shoebox solar oven that can melt an ice cube.	Shoebox, aluminium foil, skewers, ice cube, plastic food wrap, sticky tape, black card.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y2-M1** – use appropriate standard units to measure length and use rulers
6. Waterwise Video	Design and make a waterwise video to teach younger children how to save water.	Digital camera or tablet computer, school grounds, water sources, film-making software.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content
7. Class Wind Farm	Design and make a windmill to add to a class wind farm.	Cardboard tubes, cardboard, craft sticks, dowel rod or pencil, masking tape, string, fan, 1 person figurine.	**SC-KS1-WS3** – perform simple tests **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **D&T-KS1-8** – explore and use mechanisms in their products **M-Y2-M1** – use appropriate standard units to measure length and use rulers

Year 2	Physical Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Fidget Spinner	Design and make a fidget spinner using plastic bottle lids.	Plastic bottle lids, cardboard, wooden skewer, glitter, PVA glue, digital camera or tablet computer.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria
2. Paper Helicopters	Design and make three paper helicopters that fall at different speeds when the force of gravity pulls them towards Earth.	Thick craft paper, paper clips, stopwatch.	**SC-KS1-WS3** – perform simple tests **C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y2-M1** – use appropriate standard units to measure length and use rulers

3. Catapult	Design and make a working catapult that pushes an object into motion.	Craft materials, elastic bands, A5 piece of paper, table tennis ball, one-meter ruler.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **D&T-KS1-8** – explore and use mechanisms in their products **M-Y2-M1** – use appropriate standard units to measure length and use rulers
4. Construction Crane	Design and make a construction crane that pulls an object into motion.	Recycled materials, string, 10 Duplo® blocks, wheels or pulley wheels.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **D&T-KS1-8** – explore and use mechanisms in their products

5. Hang-glider	Design and make a hang-glider that flies when pushed.	Art and craft materials, scrap fabric, wooden skewers, 25 Unifix™ cubes, person figurine, one-metre ruler, digital camera or tablet computer.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **M-Y2-M1** – use appropriate standard units to measure length and use rulers
6. Wagon on Wheels	Design and make a wagon on wheels that can be used to push and pull objects from one classroom to another.	Recycled materials, 30 pencils, plastic wheels, dowel rods.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria **D&T-KS1-8** – explore and use mechanisms in their products
7. Class Crazy Golf Course	Design and make a crazy golf course to add to a class crazy golf course for everyone to play.	Recycled materials, golf ball, paint, toy golf putter.	**C-KS1-4** – use technology purposefully to create, organise, store, manipulate and retrieve digital content **D&T-KS1-1** – design purposeful, functional and appealing products based on design criteria **D&T-KS1-2** – generate, develop, model and communicate their ideas **D&T-KS1-3** – select from and use a range of tools and equipment to perform practical tasks **D&T-KS1-4** – select from and use a wide range of materials and components **D&T-KS1-5** – explore and evaluate a range of existing products **D&T-KS1-6** – evaluate their ideas and products against design criteria

The following codes have been used in the *National Curriculum Links* column of the Year 2 tables to keep the tables compact:

National Curriculum Subjects:
SC – Science
C – Computing
D&T – Design and Technology
M – Mathematics

Age Ranges/Year Groups:
KS1 – Key Stage 1
Y2 – Year 2

Science National Curriculum Subject Strands:
WS – Working Scientifically
LTATH – Living Things and their Habitats
AIH – Animals including Humans
UOEM – Uses of Everyday Materials

Mathematics National Curriculum Subject Strands:
M – Measurement
G – Geometry

The number after each code refers to the position of the bullet-pointed curriculum objective within that section.

These tables provide suggested links to the Year 3 programmes of study in the national curriculum for England.

Year 3	Biological Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Potato Maze	Design and make a potato maze to see how plants grow features to meet their needs.	One shoebox, cardboard, one potato, water spray, bottle, ten pence coin.	**SC-Y3-P2** – explore the requirements of plants for life and growth **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
2. Sapling Protector	Design and make a protective device for a sapling that will allow it to reach maturity.	Plastic tubing, recycled plastic bottles, rubber bands, wire mesh, toothpicks/skewers, string, sapling, digital camera or tablet computer.	**SC-Y3-P2** – explore the requirements of plants for life and growth **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **D&T-KS2-8** – apply their understanding of how to strengthen, stiffen and reinforce more complex structures

3. Paper Plane Wings	Design and make a paper plane based on the wings of a flying animal.	Paper/card, tape.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M1** – measure and compare lengths
4. Bird Life Cycle	Design and make a claymation video of the life cycle of a bird.	Digital camera or tablet computer, presentation software to show photographs, playdough, strips of paper, marker pens.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

5. Raising a Radish	Design and make a garden to grow a radish from seed to harvest.	One plastic pot, approximately 20 cm deep; soil; radish seeds or similar; water; digital camera or tablet computer.	**SC-LKS2-WS2** – set up simple practical enquiries, comparative and fair tests **SC-LKS2-WS3** – make systematic and careful observations **SC-LKS2-WS6** – report on findings from enquiries **SC-Y3-P2** – explore the requirements of plants for life and growth **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
6. Human Skeleton	Design and make a life-sized skeleton of a pupil in your class.	Long strips of white card, sheets of white card, split pins, metre ruler, measuring tape, scissors, stapler and staples.	**SC-Y3-AIH2** – identify that humans have skeletons and muscles for support, protection and movement **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M1** – measure and compare lengths

7. Broad Bean Time-lapse Video	Design and make a time-lapse video of a broad bean seed growing into a plant. Add your broad bean plants to a class garden.	Broad bean seed, large plastic cup, cotton wool, water sprayer, digital camera or tablet computer, movie-making software.	**SC-Y3-P2** – explore the requirements of plants for life and growth **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

Year 3	Chemical Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Chocolate Welding	Design and make a building using marshmallows and chocolate to hold it together.	Tray of warm water, bowl, large plate, chocolate pieces, marshmallows (range of shapes and sizes), small sweets for decoration.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M1** – measure and compare lengths
2. Ice Hotel	Design and make an ice hotel using just water and salt.	Water, plastic tray, salt, ice block tray or ice cube bags, digital video recorder or tablet computer.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M1** – measure and compare lengths

3. Ice Sculpture	Design and make an ice sculpture by freezing water into different shapes.	Water, moulds, food colouring, salt, plastic plate, plasticine or playdough to make moulds.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
4. Plastic Milk	Design and make a hanging ornament by turning milk into plastic.	Milk, vinegar, food colouring, sieve, moulds, baking paper.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

5. Keep a Toy Dry	Create a cover for a furry plush toy that will keep it dry when placed underwater.	Various waterproof materials for the cover; rubber bands, string, tape to secure the cover; furry plush toy; digital camera or tablet computer.	**SC-LKS2-WS2** – set up simple practical enquiries, comparative and fair tests **SC-LKS2-WS3** – make systematic and careful observations **SC-LKS2-WS6** – report on findings from enquiries **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M5** – record and compare time in terms of seconds
6. Brain Training Game	Design and make two sets of cards to be used as a memory game – also known as Pelmanism.	Card, laminating machine and sheets, computer with word processing program, printer.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M1** – measure and compare lengths

7. Recycled Paper Card	Design and make a birthday card using recycled paper.	Sieve, shredded paper/newspaper, decorative materials, bucket, water, towels, rolling pin, baking paper.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M1** – measure and compare capacity

Year 3	Environmental Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Make a Rock	Create a rock that replicates a sedimentary rock.	Sand, gravel/small rock chips, small shells, plastic cup, salt, sugar, plaster of Paris.	**SC-Y3-R1** – compare and group together different kinds of rocks on the basis of their appearance and simple physical properties **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M1** – measure and compare lengths
2. Soil Erosion Demonstrator	Cake a soil erosion demonstrator using recycled plastic bottles.	Soil, wood chips, plant, six plastic bottles, string, digital camera or tablet computer, presentation software.	**SC-Y3-R3** – recognise that soils are made from rocks and organic matter **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M1** – measure and compare capacity

3. DIY Sunglasses	Design and make a pair of sunglasses.	Card, cellophane, digital camera or tablet computer, presentation software.	**SC-Y3-L3** – recognise that light from the sun can be dangerous and that there are ways to protect their eyes **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M1** – measure and compare lengths
4. 24 Hours in the Life of …	Create a short story about 24 hours in the life of a character and act it out to create a film.	Digital camera or tablet computer, iMovie®, *Windows Movie Maker* or similar software, costumes/settings.	**SC-Y3-L1** – recognise that they need light to see things and that dark is the absence of light **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **M-Y3-M5** – record and compare time in terms of seconds, minutes and hours

5. Parasol	Design and make an umbrella that blocks out the sunlight instead of the rain.	Sunproof materials/fabrics, long tubes, craft sticks, plastic bottles, newspaper.	**SC-Y3-L3** – recognise that light from the sun can be dangerous and that there are ways to protect their eyes **SC-Y3-L4** – recognise that shadows are formed when the light from a light source is blocked by a solid object **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
6. Earth, Moon and Sun Mobile	Design and make a mobile that shows the relative sizes of Earth, the moon and the sun, and the relative distances they are from each other.	Card, craft sticks, straws, string.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M1** – measure and compare lengths

7. Sundial Watch	Design and make a sundial watch.	Small/medium-sized lid, fabric, card.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

Year 3	Physical Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Magnet Maze Game	Design and make a maze to move a metal object through using a magnet.	Sturdy cardboard, coloured sticky tape or narrow masking tape, magnet, magnetic object, cardboard tubes or plastic bottles.	**SC-Y3-FAM2** – notice that some forces need contact between two objects, but magnetic forces can act at a distance **SC-Y3-FAM3** – observe how magnets attract some materials and not others **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M1** – measure and compare lengths

2. Marble Run	Design and make a vertical marble run that will make the marble travel the slowest.	Cardboard; cardboard rolls; newspaper; various coverings for the ramps such as fabric, carpet scraps, aluminium, rubber or bubble wrap; stopwatch.	**SC-LKS2-WS2** – set up simple practical enquiries, comparative and fair tests **SC-LKS2-WS3** – make systematic and careful observations, taking accurate measurements using standard units, using a range of equipment **SC-LKS2-WS4** – gather, record and present data in a variety of ways **SC-LKS2-WS5** – record findings using bar charts and tables **SC-LKS2-WS6** – report on findings from enquiries **SC-LKS2-WS7** – use results to draw simple conclusions **SC-Y3-FAM1** – compare how things move on different surfaces **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M5** – record and compare times in terms of seconds and minutes **M-Y3-M7** – compare durations of events **M-Y3-S1** – present data using bar charts and tables

3. Simple Newton's Cradle	Design and make a simple Newton's cradle to show how forces travel.	Craft sticks, marbles, glue gun, string, audio recorder or tablet computer, movie editing software.	**SC-Y3-FAM2** – notice that some forces need contact between two objects **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
4. Hoverboard Model	Design and make a hoverboard model using the science of magnetic repulsion.	Magnets/bar magnets, craft sticks, plastic bottles, polystyrene, cardboard.	**SC-Y3-FAM3** – observe how magnets attract or repel each other **SC-Y3-FAM6** – predict whether two magnets will attract or repel each other, depending on which poles are facing **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M1** – measure and compare lengths

5. Blow a Boat	Design and make a sail for a boat that can only be moved by blowing through a straw.	Small plastic toy, large lid or balsa wood, paper, fabric scraps, straw, large plastic tray and water.	**SC-Y3-FAM2** – notice that some forces need contact between two objects **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
6. Obstacle Course	Design and make an obstacle course with three stations that involve bouncing, throwing and rolling a ball.	Plastic cones, variety of balls, cardboard, stopwatch.	**SC-Y3-FAM2** – notice that some forces need contact between two objects **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M5** – record and compare times in terms of seconds and minutes

7. Leapfrog Catapult Game	Design and make a catapult game to launch jelly frogs onto a lily pad.	Craft sticks, rubber bands, coloured cardboard, jelly frog sweets.	**SC-Y3-FAM2** – notice that some forces need contact between two objects **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y3-M1** – measure and compare lengths

The following codes have been used in the *National Curriculum Links* column of the Year 3 tables to keep the tables compact:

National Curriculum Subjects:
SC – Science
C – Computing
D&T – Design and Technology
M – Mathematics

Age Ranges/Year Groups:
KS2 – Key Stage 2
LKS2 – Lower Key Stage 2
Y3 – Year 3

Science National Curriculum Subject Strands:
WS – Working Scientifically
P – Plants
AIH – Animals including Humans
R – Rocks
L – Light
FAM – Forces and Magnets

Mathematics National Curriculum Subject Strands:
M – Measurement
S – Statistics

The number after each code refers to the position of the bullet-pointed curriculum objective within that strand.

These tables provide suggested links to the Year 4 programmes of study in the national curriculum for England.

Year 4	Biological Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. A Day in the Life of a Snail	Create and produce a short documentary about a day in the life of a snail.	Digital video recorder or tablet computer, movie editing software, snail in its habitat or create a model of a snail using air-dry clay.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices
2. Predator and Prey Game	Design a board game based on *Snakes and Ladders,* using animals that are predators and prey instead.	Cardboard, drawing supplies, printouts of Internet images.	**SC-Y4-AIH3** – construct and interpret a variety of food chains, identifying producers, predators and prey **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

3. A Home in a Tree	Design and make a prototype squirrel house.	Cardboard sheets; card snips; hay, straw or fibre stuffing; string or cable ties, digital camera or tablet computer.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
4. Trivia Quiz	Create an online quiz based on knowledge about producers, consumers and decomposers.	Computer access, non-fiction books.	**SC-Y4-AIH3** – construct and interpret a variety of food chains, identifying producers, predators and prey **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices
5. Designer Shoe	Design and make a shoe based on the features of a duck's foot.	Fabric/lycra, plastic sheets, straws, rubber, foam, stockings.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

6. Healthy Fruit Yoghurt	Design and make a healthy fruit yoghurt.	Milk, live yoghurt culture, range of fresh fruit, cooking utensils, thermos flask.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **D&T-KS2-14** – understand and apply the principles of a healthy and varied diet
7. Mini Biodome	Design and make a mini biodome based on one type of environment.	Two-litre plastic bottles or other plastic disposable plastic containers, modelling clay, string, tape, seeds, soil.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

Year 4	Chemical Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Build a Bridge	Design and make a bridge from a material that is strong enough to hold a toy truck.	Small toy truck; building supplies such as craft sticks, dowelling, cardboard, plastic, metal rulers, newspaper; string; tape.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
2. Natural Thermos Flask	Design and make a simple thermos flask that uses a natural material as the insulator.	Cardboard; tape for outer part of thermos flask; wool, cotton, feathers; timer/stopwatch; thermometer; glass of warm water.	**SC-LKS2-WS2** – set up simple practical enquiries, comparative and fair tests **SC-LKS2-WS3** – make systematic and careful observations and take accurate measurements using standard units and a range of equipment **SC-LKS2-WS5** – record findings using bar charts **SC-LKS2-WS6** – report on findings from enquiries **SC-LKS2-WS7** – use results to draw simple conclusions **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y4-S1** – interpret and present data using appropriate graphical methods

3. Slushie Stall	Design and make a flavoured slushie and a stall to sell your slushie from.	Water, fruit cordial flavours, small clear plastic cups, straws, cardboard.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
4. Repurposing Plastic Bottles	Design and make something out of a plastic bottle, so that it can be repurposed rather than recycled.	Different-sized plastic bottles, various art and craft materials.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
5. Oobleck Speaker	Create and produce a music video using dancing oobleck. Watch a video by scanning the QR code.	Digital recorder or tablet computer; speaker or subwoofer; cling film or tray placed on the speaker; oobleck: 1 cup of water, 2 cups of cornflour, drops of food colouring.	**SC-LKS2-SOM1** – compare and group materials together, according to whether they are solids, liquids or gases **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices

6. Floam Structure	Design and make a 3-D structure using floam.	Floam: 2 teaspoons of borax combined with ½ cup warm water in a bowl; ¼ cup of PVA glue, drops of dye and ¼ cup water combined in a bowl; ⅓ cup of polystyrene beads. Combine all in a ziplock bag and mix. Gloves, ziplock bags bowls.	**SC-Y4-SOM1** – compare and group materials together, according to whether they are solids, liquids or gases **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
7. Soundproof Box	Make a soundproof box that will contain the sound of an alarm clock or beeping timer.	Shoebox or small box; rubber, foam, wadding; alarm clock or timer that beeps; audio recorder; sound sensor.	**SC-LKS2-WS2** – set up simple practical enquiries, comparative and fair tests **SC-LKS2-WS3** – make systematic and careful observations and take accurate measurements using standard units and a range of equipment **SC-LKS2-WS6** – report on findings from enquiries **SC-LKS2-WS7** – use results to draw simple conclusions **SC-Y4-S2** – recognise that vibrations from sounds travel through a medium to the ear **C-KS2-5** – use search technologies effectively

Year 4	Environmental Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Papier-mâché Globe	Design and make a globe of the world, with an axis it can spin on and a stand for it to be placed on.	Strips of newspaper, round balloon, one and a half cups of water, one cup flour, bucket, printouts of Internet images of the continents of the world, dowelling.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
2. Earth Cookies	Design and make some cookies that resemble the oceans and continents of planet Earth.	Ingredients to make cookies, baking equipment and utensils, food colouring (blue and green).	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **D&T-KS2-15** – prepare and cook a variety of dishes using a range of cooking techniques

3. Earth Layer Model	Design and make a model to clearly show the layers of planet Earth.	Salt dough, food colouring, toothpicks and paper.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
4. Volcano Village	Design and make a model of a volcano village to show the effects of lava flow on the surrounding areas.	Plastic tray; plastic modelling clay; lava: vinegar, bicarbonate of soda, food colouring, drops of dishwashing liquid; digital recording device or tablet computer.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

5. Earthquake Maker	Create a model of an earthquake using cardboard sheets and sand.	2 cardboard sheets, damp sand, digital camera or tablet computer, slideshow software.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
6. Disaster-proof Building	Design and make a structure that is safe from wind, floods and earthquakes.	Matchsticks/toothpicks, plastic modelling clay, bamboo skewers, plastic tray to hold the structure, digital recording device or tablet computer.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **D&T-KS2-8** – apply their understanding of how to strengthen, stiffen and reinforce more complex structures

7. Flood-proof Barrier	Design and make a barrier for a paper house that is able to resist flood waters.	Sand, fabric scraps, plastic modelling clay, plastic basin, jug, polystyrene cups, sponges, paper/ card, aluminium foil, baking paper, craft sticks, plastic tray.	**SC-LKS2-WS2** – set up simple practical enquiries, comparative and fair tests **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

Year 4	Physical Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Simple Thermometer	Design and make a simple thermometer using a glass bottle.	Clear straw, small glass bottle, food colouring, plastic modelling clay, rubbing alcohol, water.	**SC-LKS2-WS3** – make systematic and careful observations and take accurate measurements using standard units and a range of equipment **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
2. Winter Hat	Design and make a hat to keep your head warm in winter.	Insulating materials, fabric, elastic, cotton, sewing needles.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
3. How-to Video: Create Fire	Design and make a simple how-to video explaining how to start a fire using just friction and sticks.	Digital camera or tablet computer, sticks.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices
4. Invisible Ink	Design and make an invisible ink picture about heat.	Lemon juice, card, paintbrush, candle, digital camera or tablet computer.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices

5. Solar Toastie Maker	Design and make a solar toastie maker big enough to fit a slice of bread.	Cardboard box or old pizza box, materials to conduct heat, materials to attract sunlight and heat, bread and cheese.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **D&T-KS2-15** – prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
6. Cooking Pan	Design and make a frying pan that could be used for cooking at a campsite.	Materials that are good conductors, materials that are poor conductors.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

7. House Insulation	Design and make insulation for a model house that keeps a cup of hot water hot.	Cardboard, materials that are good insulators, thermometer, cup of hot water.	**SC-LKS2-WS2** – set up simple practical enquiries, comparative and fair tests **SC-LKS2-WS3** – make systematic and careful observations and take accurate measurements using standard units and a range of equipment **SC-LKS2-WS5** – record findings using bar charts **SC-LKS2-WS6** – report on findings from enquiries **SC-LKS2-WS7** – use results to draw simple conclusions **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y4-S1** – interpret and present data using appropriate graphical methods

The following codes have been used in the *National Curriculum Links* column of the tables to keep the tables compact:

National Curriculum Subjects:
SC – Science
C – Computing
D&T – Design and Technology
M – Mathematics

Age Ranges/Year Groups:
KS2 – Key Stage 2
LKS2 – Lower Key Stage 2
Y4 – Year 4

Science National Curriculum Subject Strands:
WS – Working Scientifically
AIH – Animals including Humans
SOM – States of Matter
S – Sound

Mathematics National Curriculum Subject Strands:
S – Statistics

The number after each code refers to the position of the bullet-pointed curriculum objective within that strand.

These tables provide suggested links to the Year 5 programmes of study in the national curriculum for England.

Year 5	Biological Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Camouflage in Animals	Design and make a camouflaged animal in a habitat.	Playdough/plastic modelling clay, art and craft supplies, cardboard box/shoebox, digital video recorder or tablet computer.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
2. Desert Garden	Design a landscaped garden for a desert home.	Drawing supplies, card, grid paper, scanner.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y5-Me4** – calculate the area of rectangles and use standard units

3. A Camel in the Arctic	Adapt a camel to survive in the Arctic.	Art and craft supplies, modelling clay, digital video recorder or tablet computer, props as required for the video.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
4. A Super-animal	Design and make an animal made up from adapted features of other animals, which will enable your animal to live in any environment.	Tablet computer or computer, colour printer, scissors, glue, A3 card.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

5. Fantastic Fertile Flowers	Design and make a model of a flower that allows you to explain their role in the reproduction in plants.	Sheets of bright card and paper, scissors, art and craft materials, glue gun, plastic modelling clay.	**SC-Y5-LT&TH2** – describe the life processes of reproduction in plants **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
6. Build a Costume Prop	Design and make a costume prop based on one special feature of an animal.	Fabric, various recycled materials, foam, art and craft supplies.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
7. Nocturnal Animal Short Film	Create and produce a short film about the night-time adventures of an animal such as a badger or fox.	Costumes made from fabric and recycled materials, props made from cardboard and recycled materials, digital video recorder or tablet computer.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

Year 5	Chemical Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Egg Menu	Design and make a breakfast menu for a café, featuring all the ways an egg can be cooked.	Computer, printer, laminator.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **SC-Y5-P&COM6** – explain that some changes result in the formation of new materials and that this kind of change is not usually reversible **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices
2. Gas-powered Boat	Design and make a gas-powered boat.	Recycled plastic materials, cans and milk cartons; craft supplies such as aluminium foil, plastic lids and tape; glue gun; Blu-tack®; straws; bicarbonate of soda; vinegar; large tub or tray of water.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **SC-Y5-P&COM6** – explain that some changes result in the formation of new materials and that this kind of change is not usually reversible **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

3. Plastic Bag Fusing	Design and make a product using fused plastic bags.	Plastic bags, baking paper, iron/ ironing board, glue, needle and thread, fabric strips, art and craft supplies.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **SC-Y5-P&COM5** – demonstrate that dissolving, mixing and changes of state are reversible changes **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
4. Create an 'Ice Cream Float' Flavour	Design and make a new ice cream float flavour by combining ice cream and a soft drink.	Spoons, large cups, ice creams, soft drinks, flavourings, digital video recorder or tablet computer.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **SC-Y5-P&COM2** – know that some materials will dissolve in liquid form to form a solution **SC-Y5-P&COM5** – demonstrate that dissolving, mixing and changes of state are reversible changes **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices
5. Soluble Crystal Designs	Design and make a pattern, word or object by growing crystals.	Pipe cleaners; solution: 3 tablespoons of borax dissolved in one cup of hot water; string; food colouring; large jars or containers to suspend the pipe cleaners in.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **SC-Y5-P&COM2** – know that some materials will dissolve in liquid form to form a solution **SC-Y5-P&COM5** – demonstrate that dissolving, mixing and changes of state are reversible changes **C-KS2-5** – use search technologies effectively

6. Hot Air Balloon	Design and make a small hot-air balloon. Scan the QR code to watch a video of a lantern festival.	Thin, medium-sized bin liners (the cheap brands are best); tea light candles; straws; aluminium foil; tablet computer or digital video recorder.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
7. Dirty to Clean with Evaporation	Design and make a way to obtain clean water from dirty water using evaporation.	Large bowl or container, cling film, plastic cup, warm water, dirt.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS2** – take measurements using a range of scientific equipment **SC-UKS2-WS5** – report and present findings from enquiries **SC-Y5-P&COM3** – use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporation **SC-Y5-P&COM5** – demonstrate that dissolving, mixing and changes of state are reversible changes **C-KS2-5** – use search technologies effectively

Year 5	Environmental Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Alien Planet	Design and make an alien from one of the planets in our solar system and create an audio recording of the alien describing its planet.	Digital audio recorder or tablet computer, plastic modelling clay, pipe cleaners, card, recycled materials, sound editing software such as *Audacity*.	**SC-Y5-E&S1** – describe the movement of planets relative to the sun in the solar system **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
2. Night and Day Time-lapse Video	Design and make a time-lapse video showing the sky turning from day to night	Digital camera or tablet computer, *iMovie*® or *Windows Movie Maker* or similar.	**SC-Y5-E&S4** – use the idea of Earth's rotation to explain day and night **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices
3. Constellation Viewer	Design and make a constellation viewer that shows six constellations found in the solar system.	Cardboard or plastic tube-shaped items, art and craft materials, aluminium foil.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

4. Solar Power Tower	Design and make a tower that will use the sun to power a pinwheel connected to the top.	Various thermal materials, craft sticks, rubber bands, plastic modelling clay, card/paper, recycled materials, digital video recorder or tablet computer.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
5. Comic Book Character	Design and make a comic book character whose powers are obtained from the sun.	Drawing materials, card/paper, computer, comic strip creator website such as *Comic Life*.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices
6. Solar System Mobile	Design and make a mobile of the solar system, using accurate relative sizes.	Fabric, wool/string/wire/fishing line, coat hangers, dowelling, newspaper, recycled materials.	**SC-Y5-E&S1** – describe the movement of Earth and other planets relative to the sun in the solar system **SC-Y5-E&S3** – describe the sun, Earth and moon as approximately spherical bodies **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

7. Parabolic Cooker	Design and make a parabolic cooker that focuses the sun's energy onto a point to melt a marshmallow.	Rectangular cardboard box/ shoebox, piece of card, piece of black card, aluminium foil, glue, marshmallows, timer.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

Year 5	Physical Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Solar-powered Buggy	Design and make a simple buggy car that uses solar power to move.	Solar cell, low inertia solar motor, glue gun, recycled materials, wheels.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
2. Simple Wind Turbine	Design and make a simple wind turbine that can lift a weighted cup off the floor.	Plastic cup, weights, cardboard, hairdryer or fan, pencil, Blu-tack®, tape, string.	**SC-Y5-F3** – recognise that some mechanisms allow a smaller force to have a greater effect **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **D&T-KS2-9** – understand and use mechanical systems in their products

3. Potato Battery	Design and make a system of potatoes and wires to light a small light bulb or LED light.	1.5V light bulb or LED light, potatoes, copper pennies, zinc nails, circuit wires with alligator clamps.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **D&T-KS2-10** – understand and use electrical systems in their products
4. Sustainable Home of the Future	Design and build a model house and its surroundings that shows three forms of sustainable energy that can be used to power the home.	Recycled plastic bottles, cardboard box, index cards, straws, card/ paper, aluminium foil, Lego™, mirrors.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

5. Angry Bird Game	Design and make an angry bird game using paper and wood structures.	Thick paper, craft sticks, art straws, masking tape or sticky tape, elastic bands, glue sticks, digital camera or tablet computer.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **M-Y5-G1** – identify 3-D shapes from 2-D representations
6. Waterwheel	Design and make a waterwheel that makes at least two full turns.	Plastic bottles, plates, cups, tubing, straws; art and craft supplies; Blu-tack®; timer; large plastic tub/ tray; dowelling; bucket; tablet computer or digital recording device.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS3** – record data and results of increasing complexity **SC-UKS2-WS5** – report and present findings from enquiries **SC-Y5-F3** – recognise that some mechanisms allow a smaller force to have a greater effect **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **D&T-KS2-9** – understand and use mechanical systems in their products

7. Illuminated School Crest	Design and make a school crest or badge with LED lights incorporated into the design.	Coloured card, surface mounted LED lights, 3V battery, copper tape, cardboard, art and craft supplies.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **D&T-KS2-10** – understand and use electrical systems in their products

The following codes have been used in the *National Curriculum Links* column of the tables to keep the tables compact:

National Curriculum Subjects:
SC – Science
C – Computing
D&T – Design and Technology
M – Mathematics

Age Ranges/Year Groups:
KS2 – Key Stage 2
UKS2 – Upper Key Stage 2
Y5 – Year 5

Science National Curriculum Subject Strands:
WS – Working Scientifically
LT&TH – Living Things and their Habitats
P&COM – Properties and Changes of Materials
E&S – Earth and Space
F – Forces

Mathematics National Curriculum Subject Strands:
Me – Measurement
G – Geometry

The number after each code refers to the position of the bullet-pointed curriculum objective within that strand.

These tables provide suggested links to the Year 6 programmes of study in the national curriculum for England.

Year 6	Biological Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Antarctic Memes	Design and make a series of memes using images of animals that live in Antarctica.	Internet images, program to create a meme such as Microsoft® *PowerPoint*® or *Word*®.	**SC-UKS2-WS5** – report and present findings **SC-Y6-E&I 3** – identify how animals are suited to their environment **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices
2. Migration Card	Design and make a fictitious migration card for a bird that migrates to and lands in the United Kingdom.	Card, access to a computer with a word processing program, printer.	**SC-Y6-E&I 3** – identify how animals are suited to their environment **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas
3. 3-D Desert Viewer	Make a stereoscope viewer and view images of the desert environment in 3-D.	Cardboard, recycled materials, magnifying lenses, digital device with QR reader.	**SC-UKS2-WS5** – report and present findings **SC-Y6-E&I 3** – identify how animals and plants are suited to their environment **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2 -2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components

4. Yeast Challenge	Create a method to make bread dough rise the quickest.	Flour, yeast, warm water, bowls, thermometer, measuring cups/ spoons, digital camera, timer.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS2** – take measurements using a range of scientific equipment **SC-UKS2-WS3** – record data and results of increasing complexity **SC-UKS2-WS5** – report and present findings from enquiries **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-15** – prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
5. Greenhouse Effect in a Bottle	Design and make a small-scale greenhouse effect in a bottle.	Light/heat source, plastic bottles, thermometer, small plant, soil, tape, timer.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS2** – take measurements using a range of scientific equipment **SC-UKS2-WS3** – record data and results of increasing complexity **SC-UKS2-WS5** – report and present findings from enquiries **SC-UKS2-WS6** – identify scientific evidence that has been used **C- KS2-5** – use search technologies effectively
6. News Story about a Natterjack Toad	Design and make a short news story about the amazing hibernation ability of the natterjack toad..	Tablet computer or digital recording device, news desk, digital images of natterjack toads.	**SC-UKS2-WS5** – report and present findings **SC-Y6-E&I 3** – identify how animals are suited to their environment **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices
7. Claymation Film of Humpback Whale Migration	Design and make a claymation film of the migration path of a humpback whale.	Modelling clay, tablet computer or digital camera, movie editing software, cardboard, art and craft supplies.	**SC-UKS2-WS5** – report and present findings **SC-Y6-E&I 3** – identify how animals are suited to their environment **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices

Year 6	Chemical Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Summer Flip Flops	Design and make a flip flop shoe tt is comfortable and waterproof.	Sheet materials such as fun foam/ cardboard/bubble wrap, glue gun, art and craft materials.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
2. Ping-pong Rollercoaster	Design and make a rollercoaster for a ping-pong ball using plastic straws.	Plastic straws, masking or sticky tape, ping-pong ball, small plastic bowl, digital video camera or tablet computer, film editing software.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **D&T-KS2-8** – apply their understanding of how to strengthen, stiffen and reinforce structures
3. Cooking Programme	Create and produce a short cooking programme video to demonstrate how to make a recipe that involves the heating and cooling of solids and liquids.	Ingredients for the recipe, baking pan, props for video, digital video recorder or tablet computer.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-15** – prepare and cook a variety of dishes using a range of cooking techniques

4. Mini Parachute	Create a parachute for a small toy figurine.	Various test materials such as tissue paper, fabric scraps, newspaper, cellophane, feathers; timer; toy figurine.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS**5 – report and present findings from enquiries **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
5. Zoetrope Animation	Design and make a simple animation, called a zoetrope, based on an irreversible change of a substance.	Black card/white card, recycled materials, cardboard cylinders, pencil or dowelling, glue stick, scissors.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

6. Rusty Garden Sculpture	Design and make a garden sculpture using steel coat hangers and rust it to make it appear antique.	Steel coat hangers; rusting solution: 475 mL hydrogen peroxide 3%, 60 mL white vinegar, ½ tablespoon of salt; safety goggles; large plastic tub; gloves; wire.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
7. Homemade Hair Gel Mixture	Design and create a mixture which works as a hair gel.	Various ingredients that dry stiff, various ingredients that smell pleasant, various ingredients that make hair lustrous, bowls, tablet computer or digital recording device, plastic container to store final product.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS3** – record data and results of increasing complexity **SC-UKS2-WS5** – report and present findings from enquiries **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices

Year 6	Environmental Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. DIY Seismograph	Design and make a simple seismograph that measures shaking from an earthquake.	Cardboard/cereal box, plastic cups, sand, pen, string, tape, wooden strips.	**C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
2. Flood Garden Raft	Design and make a model floating garden that could survive a sudden flash flood.	Recycled plastic containers, polystyrene cups and trays, bubble wrap, bamboo skewers, string/tape, materials that float, soil and small plants/herbs, tub of water, hose, tablet computer or digital recording device.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **D&T-KS2-8** – apply their understanding of how to strengthen, stiffen and reinforce structures

3. Earthquake!	Create a shake table and design and make buildings to place on top that can withstand an earthquake.	Shake table: 2 rectangular cardboard pieces, 4 small rubber balls placed between the cardboard pieces and rubber bands to secure it together; various recycled materials and art and craft supplies; tablet computer or digital recording device.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **D&T-KS2-8** – apply their understanding of how to strengthen, stiffen and reinforce structures
4. Tectonic Plate Jigsaw	Design and make a jigsaw puzzle of a map of the world's tectonic plates.	Thick card, printer, laminator, digital map/image, craft knife.	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

5. Drought-tolerant Garden	Design and make a Mediterranean garden landscape plan that uses drought-tolerant plants.	A4 grid paper taped together to form A3 size, A3 card, scanner.	**SC-Y6-E&I 3** – identify how plants are suited to their environment **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
6. Flood-proof Home	Design and make a model house that can withstand rising flood waters.	Recycled materials, plastic modelling clay, craft sticks, cardboard, aluminium foil, bamboo skewers, bucket, water, plastic tray or tub, tablet computer or digital recording device.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria **D&T-KS2-8** – apply their understanding of how to strengthen, stiffen and reinforce structure
7. Tsunami Warning Video	Design and make a tsunami warning video to assist in educating people in order to manage and minimise the effects of this natural disaster.	Tablet computer or digital recording device, props or costumes, movie-making software, green screen and software..	**C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices

Year 6	Physical Sciences		
Card	**Task**	**Suggested Materials**	**National Curriculum Links**
1. Secret Quiz	Design and make a series of quiz question cards that are only revealed by placing a glass of water in front of the card.	Glass or jar of water, card, marker pens.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **SC-UKS2-WS6** – identify scientific evidence that has been used to support or refute ideas **SC-Y6-L1** – recognise that light appears to travel in straight lines **C-KS2-5** – use search technologies effectively
2. Superhero Signal	Design and make two symbols for a superhero signal that can be projected onto a wall.	Torch, tubing, card.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **SC-Y6-L1** – recognise that light appears to travel in straight lines **SC-Y6-L4** – explain why shadows have the same shape as the objects that cast them **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

3. Kaleidoscope	Design and make a kaleidoscope that uses mirrors and light to display an image.	Reflective materials or card mirrors, tubing, card, art and craft supplies.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **SC-Y6-L1** – recognise that light appears to travel in straight lines **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
4. Shadow Puppet Theatre	Design and make a shadow puppet stage and shadow puppet characters.	Various opaque materials, cardboard boxes or other recycled materials, torch, craft sticks, curtain/ fabric, baking paper/tissue paper, digital video recorder or tablet computer.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **SC-Y6-L1** – recognise that light appears to travel in straight lines **SC-Y6-L4** – explain why shadows have the same shape as the objects that cast them **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

5. Radiation Shield	Design and make a spacecraft with a radiation shield to protect the astronauts from the sun.	Various opaque materials, cardboard boxes or other recycled materials to create the body of the spacecraft, strong spotlight torch to represent the sun.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **SC-Y6-L1** – recognise that light appears to travel in straight lines **SC-Y6-L4** – explain why shadows have the same shape as the objects that cast them **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria
6. Laser Light Maze	Design and make a light maze using mirrors to bend light.	Mirrors, laser light or torch, safety goggles, cardboard, shoebox.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **SC-Y6-L1** – recognise that light appears to travel in straight lines **SC-Y6-L2** – explain that objects are seen because they give out or reflect light into the eye **C-KS2-5** – use search technologies effectively **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

7. Carnival Funhouse Mirror	Design and make a funhouse mirror that distorts your reflection.	Reflective materials, cardboard boxes, plastic sheeting, card, wood, digital camera or tablet computer.	**SC-UKS2-WS1** – plan different types of scientific enquiries to answer questions **SC-UKS2-WS5** – report and present findings from enquiries **SC-Y6-L1** – recognise that light appears to travel in straight lines **SC-Y6-L2** – explain that objects are seen because they give out or reflect light into the eye **C-KS2-5** – use search technologies effectively **C-KS2-6** – select, use and combine a variety of software on a range of digital devices **D&T-KS2-1** – use research and develop design criteria to inform the design **D&T- KS2-2** – generate, develop, model and communicate their ideas **D&T-KS2-3** – select from and use a wider range of tools and equipment **D&T-KS2-4** – select from and use a wider range of materials and components **D&T-KS2-5** – investigate and analyse a range of existing products **D&T-KS2-6** – evaluate their ideas and products against their own design criteria

The following codes have been used in the *National Curriculum Links* column of the tables to keep the tables compact:

National Curriculum Subjects:
SC – Science
C – Computing
D&T – Design and Technology

Age Ranges/Year Groups:
KS2 – Key Stage 2
UKS2 – Upper Key Stage 2
Y6 – Year 6

Science National Curriculum Subject Strands:
WS – Working Scientifically
E&I – Evolution and Inheritance
L – Light

The number after each code refers to the position of the bullet-pointed curriculum objective within that strand.