

Product Outcomes:

Design, make and evaluate a 3D bed, using joining techniques, for an owl baby to sleep in.

National Curriculum Links:

To develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world, to build and apply a repertoire of knowledge, understanding and skills in order, to design and make high-quality prototypes and products for a wide range of users, to critique, evaluate and test their ideas and products and the work of others.

Prior Learning:

EYFS – Expressive arts and design

Experience of using construction toys such as lego. Experience of using of basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card.

Key Essential Skills and Knowledge for this Unit:

Designing:

- Generate ideas based on simple design criteria and their own experiences, explaining what they could make.
- Develop, model and communicate their ideas through drawings and mock-ups with card and paper.

Making:

- Plan by suggesting what to do next.
- Select and use tools, explaining their choices, to cut, shape and join paper and card.
- Use simple finishing techniques suitable for the product they are creating.

Evaluating:

- Explore a range of existing books and everyday products that use simple sliders and levers.
- Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria.

Technical knowledge and understanding:

- Explore and use sliders and levers.
- Understand that different mechanisms produce different types of movement.
- Know and use technical vocabulary relevant to the project.

Sticky Knowledge for topic:

- Designs identify the materials you will need to make a product and what it will look like.
- Know that a freestanding structure stands on its own foundation or base without attachment to anything else.
- Name and explain at least three joining/attachment techniques (tabs, flange, slot, L-brace)
- Know that a buttress is a structure added to a wall, tower or framework to make it more stable and/or reinforce it.
- Know and explain how bricks can be arranged to make a strong wall (brick bonding)
- Build structures, exploring how they can be made stronger, stiffer and more stable.
- Evaluate means to test your product to see if it works and if it fits your design criteria.
- Evaluate means to think what you would do differently next time to make your product even better.

Vocabulary:

Cut, fold, join, fix, weak, strong, structure, base, underneath, thicker, thinner, corner, point, straight, curved, rectangle, cube, cuboid, cylinder

Sequence:

Investigate and evaluate:

- What shapes and special features do beds have?

Design:

- How can we make sure the bed won't fall over?
- What key features will I include in my freestanding owl bed?

Make:

- How can I connect the legs and bed base?

Evaluate:

- How can improve the structure of the bed?

Thinking Deeper: What would an old bed look like?

Possible books/resources:

- Owl Babies
- Goldilocks and the three bears
- Photos of different beds and chairs
- Joining ideas in the workshop area of the classroom

Links:

Subject Specific links – Mathematics – use appropriate standard and non-standard measures.

Recognise and name common 2-D and 3-D shapes, science – think about the properties of materials that make them suitable or unsuitable for particular purposes, spoken language – ask relevant questions to extend their knowledge and understanding, build technical vocabulary.

Personal development – teamwork, building resilience when ideas do not work straight away.

SMSC – social – working with others, offering and receiving feedback on designs and products.

Cultural Capital – gaining knowledge of the structures in our local area.

Careers – architects, builders.

British Values – Awareness of animals of the UK and RSPB.

Equality – Does everyone have an address?

Independence – What furniture do I use, how is the same/different?

Community – Are there any benches in our village? How are they made?

Outdoor learning – Forest schools, village walks.

Product Outcomes:

Design, make and evaluate a model fire engine.

National Curriculum Links:

To develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world, to build and apply a repertoire of knowledge, understanding and skills in order, to design and make high-quality prototypes and products for a wide range of users, to critique, evaluate and test their ideas and products and the work of others.

Prior Learning:

EYFS – Expressive arts and design

Early experiences of working with paper and card to make simple flaps and hinges. Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape.

Key Essential Skills and Knowledge for this Unit:

Designing:

- Generate initial ideas and simple design criteria through talking and using own experiences.
- Develop and communicate ideas through drawings and mock-ups.

Making:

- Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing.
- Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics.

Evaluating:

- Explore and evaluate a range of products with wheels and axles.
- Evaluate their ideas throughout and their products against original criteria.

Technical knowledge and understanding:

- Explore and use wheels, axles and axle holders.
- Distinguish between fixed and freely moving axles.
- Know and use technical vocabulary relevant to the project.

Sticky Knowledge for topic:

- 'Design criteria' - what a product needs to be able to do.
- Know that a mechanism is a device used to create movement in a product.
- Wheels can be fixed or moving.
- The chassis is the body of a vehicle.
- Axles allow wheels to be positioned on a stable object so that it can roll backwards or forwards.
- Washers are needed to ensure axels remain stable.
- Evaluate means to test your product to see if it works and if it fits your design criteria.
- Evaluate means to think what you would do differently next time to make your product even better.

Vocabulary:

Axle, fixed, free, design, make, cutting, joining, hacksaw, vice, dowel, body, cab, shaping.

Sequence:

Investigate and evaluate:

- What is a vehicle?
- What is the vehicle used for?
- What features can you see on a vehicle?
- How does a vehicle move?

Design:

- What different materials do you think we could use for the axles and wheels?
- How can I create and decorate the body of the vehicle?
- What kind of vehicle can I make and why?

Make:

- Can I follow a design to make a working wheeled vehicle?
- How can I make sure we are working safely and sensibly when we are making our vehicles?

Evaluate:

- What was the most difficult part to make on the vehicle?

Thinking Deeper:

How are vehicles modified to ensure disabled access?

Possible books/resources:

- Mrs Armitage on wheels
- Fire service visit.

Links:

Subject Specific links – Geography – transport surveys.

Personal development – Health and Safety rules, keeping safe when using a selection of materials.

SMSC – social – Ability to enquire and communicate ideas, designs and evaluations. Work independently and collaboratively to develop products.

Cultural Capital – identify transport use in the local area.

Careers – what vehicles are used in careers? Ambulance, royal mail trains, planes and automobiles, delivery vans, busses

British Values – Rule of Law - Health and safety laws. Laws of traffic on the roads.

Equality – disabled access to vehicles and why this is important. What amendments need to be made to vehicles to ensure wheelchairs users can access vehicles?

Independence – How does the transport I use work?

Community – What transport options are there in our community?

Outdoor learning – provision areas outside, forest school sessions.

Product Outcomes:

Design, make and evaluate a movable Easter card to give to someone at home.

National Curriculum Links:

To develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world, to build and apply a repertoire of knowledge, understanding and skills in order, to design and make high-quality prototypes and products for a wide range of users, to critique, evaluate and test their ideas and products and the work of others.

Prior Learning:

EYFS – Expressive arts and design

Early experiences of working with paper and card to make simple flaps and hinges. Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape.

Key Essential Skills and Knowledge for this Unit:

Designing:

- Generate ideas based on simple design criteria and their own experiences, explaining what they could make.
- Develop, model and communicate their ideas through drawings and mock-ups with card and paper.

Making:

- Plan by suggesting what to do next.
- Select and use tools, explaining their choices, to cut, shape and join paper and card.
- Use simple finishing techniques suitable for the product they are creating.

Evaluating:

- Explore a range of existing books and everyday products that use simple sliders and levers.
- Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria.

Technical knowledge and understanding:

- Explore and use sliders and levers.
- Understand that different mechanisms produce different types of movement.
- Know and use technical vocabulary relevant to the project.

Sticky Knowledge for topic:

- ‘Design criteria’ - what a product needs to be able to do.
- Know that a mechanism is a device used to create movement in a product.
- Name at least 2 everyday products which use levers.
- Know a slider is a rigid bar which moves backwards and forwards along a straight line.
- Know a slider does not have a pivot point.
- Technical - explore and use mechanisms [for example, levers, sliders, wheels and axles, in their products.
- Evaluate means to test your product to see if it works and if it fits your design criteria.
- Evaluate means to think what you would do differently next time to make your product even better.

Vocabulary:

Mechanism, lever, slider, slot, pivot, guide/bridge, masking tape, fastener, pull, push, down, straight, work, design, evaluate, purpose.

Sequence:

Investigate and evaluate:

- Can I explore sliders and movement?

Design:

- Can I design a moving Easter card?

Make:

- Can I construct a moving Easter card?

Evaluate:

- Can I evaluate my finished product?

Thinking Deeper:

Consider ways in which their design could be altered to make it easier to make as well as to be more appealing to the target audience.

Possible books/resources:

- Izzy Gizmo and the invention convention
- Easter cards
- Examples of levers and sliders

Links:

Subject Specific links – Art and Design – pupils to use their drawing skills.

Personal development – teamwork, building resilience when ideas do not work straight away,

SMSC – social – working with others, offering and receiving feedback on designs and products.

Cultural Capital – to have an awareness of the importance of traditional tales and nursery rhymes within British culture and history.

Careers – architects, builders

British Values – Respect & Tolerance- respecting the designs of others when evaluating each other's products.

Equality – to consider how not all children are equal and that some children living in poverty or deprived areas of the world do not get to experience such pleasures of rhymes and moveable story books.

Independence – do I have any books that have moving parts? Where have I seen moving parts?

Community – Who in our community would enjoy receiving an Easter card?

Outdoor learning – provision areas outside, forest school sessions, playground equipment

Product Outcomes:

Design, make and evaluate a woodland character puppet for our story stool book.

National Curriculum Links:

To develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world, to build and apply a repertoire of knowledge, understanding and skills in order, to design and make high-quality prototypes and products for a wide range of users, to critique, evaluate and test their ideas and products and the work of others.

Prior Learning:

EYFS – Expressive arts and design

Using paper for other purpose than drawing, explored and used different fabrics, thought about the user and purpose for the product.

Key Essential Skills and Knowledge for this Unit:

Designing:

- Design a functional and appealing product for a chosen user and purpose based on simple design criteria.
- Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology.

Making:

- Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing.
- Select from and use textiles according to their characteristics.

Evaluating:

- Explore and evaluate a range of existing textile products relevant to the project being undertaken.
- Evaluate their ideas throughout and their final products against original design criteria.

Technical knowledge and understanding:

- Understand how simple 3-D textile products are made, using a template to create two identical shapes.
- Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling.
- Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons.
- Know and use technical vocabulary relevant to the project.

Sticky Knowledge for topic:

- 'Design criteria' - what a product needs to be able to do.
- Use a template to cut out appropriate sizes of fabric.
- Use running stitch and/or over stitch to join two pieces of fabric together.
- Use a needle and thread to attach buttons and other features to material.
- Finishing touches - added at the end and make the product look more attractive.
- Evaluate means to test your product to see if it works and if it fits your design criteria.
- Evaluate means to think what you would do differently next time to make your product even better.

Vocabulary:

Pattern, mark out, decorate, running stitch, needle, fabric

Sequence:

Investigate and evaluate:

- Can I learn about the work of a range of artists and craft makers?

Design:

- Can I use materials creatively to decorate a product?

Make:

- Can I use materials creatively to make a product:

Evaluate:

- Can I evaluate my finished product?

Thinking Deeper:

What other products could we make using joined fabrics?

Possible books/resources:

- Into the forest
- Tree

Links:

Subject Specific links – English – Woodland book/learning

Personal development – teamwork, building resilience when ideas do not work straight away,

SMSC – working with others, offering and receiving feedback on designs and products.

Cultural Capital – Links to the Tidy book.

Careers – architects, builders

British Values – Respect & Tolerance – Links to the Bee and Me book

Equality – gifting their puppet to someone in need (charity), thinking about others.

Independence – to enquire and ask questions about the use of fabrics to create items.

Community – How have communities being formed around making textiles?

Outdoor learning – Beach trip, provision outdoors, forest school sessions

Product Outcomes:

Design, make and evaluate a healthy fruit/vegetable snack for a picnic at the beach for another child.

National Curriculum Links:

To develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world, build and apply a repertoire of knowledge, understanding and skills in order, to design and make high-quality prototypes and products for a wide range of users, critique, evaluate and test their ideas and products and the work of others, understand and apply the principles of nutrition and learn how to cook.

Prior Learning:

EYFS – Understanding the World

Experience of common fruit and vegetables, undertaking sensory activities eg. appearance taste and smell, experience of cuttings of fruit and vegetables using appropriate utensils.

Key Essential Skills and Knowledge for this Unit:

Designing:

- Design appealing products for a particular user based on simple design criteria.
- Generate initial ideas and design criteria through investigating a variety of fruit and vegetables.
- Communicate these ideas through talk and drawings.

Making:

- Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely.
- Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product.

Evaluating:

- Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences.
- Evaluate ideas and finished products against design criteria, including intended user and purpose.

Technical knowledge and understanding:

- Understand where a range of fruit and vegetables come from e.g. farmed or grown at home.
- Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate*.
- Know and use technical and sensory vocabulary relevant to the project.

Sticky Knowledge for topic:

- Designs can change as you make a product.
- To know there are different types of breads.
- To know how to prepare fruit and vegetables.
- To know how to use a knife to cut safely.
- To know that ingredients can be cut, grated and peeled.
- Evaluate means to test your product to see if it works and if it fits your design criteria.
- Evaluate means to think what you would do differently next time to make your product even better.

Vocabulary:

Fruit, vegetables, soft, juicy, crunchy, sticky, smooth, sharp, crisp, sour hard, flesh, skin, seed pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, tasting, arranging.

Sequence:

Investigate and evaluate:

- Can I identify what is a fruit and what is a vegetable?
- Can I identify where vegetable/salad plants grow and which parts we eat?

Design:

- Can I taste and compare fruits?
- Can I taste and compare salad/vegetable items?
- Can I design a picnic fruit/vegetable label?

Make:

- Can I make a fruit/vegetable snack?

Evaluate:

- Can I evaluate my work?

Thinking Deeper: What type of sandwich might a designer aim to create next? Consider gaps in the market and current/upcoming trends.

Possible books/resources:

- Oliver's Vegetables
- Hungry Caterpillar
- <https://www.foodfactoflife.org.uk/>
- <https://www.warburtons.co.uk/our-company/sustainability/teaching-resources/sandwich-making-project/>

Links:

Subject Specific links – Art and Design – drawing as part of their packaging design.

Personal development – to live a healthy life.

SMSC – social – food brings people together.

Cultural Capital – Which fruits are locally sourced? Which have to come from overseas? From which countries to these fruits originate?

Careers – chef, designer.

British Values – Allergy labelling, safe eating (best before) dates

Equality – could look at Co-op's Fairtrade policies.

Independence – What healthy food items do I eat? Could my choices be better?

Community – whilst working with others, ensure turns taken and ideas are listened to. Respect the ideas of others.

Outdoor learning – forest schools, planting vegetables, beach trip