

Unit 1B Playgrounds

Focus – structures

ABOUT THE UNIT

Children explore a range of full-size items of playground equipment and make their own models. This unit gives children opportunities to learn about framework structures and how to make them stable and able to support loads. They investigate materials used for the play equipment, what the different parts of the equipment are, and how they have been assembled. Through a range of focused tasks they develop their use of construction kits, combined with reclaimed materials. The main outcome of this unit will be to design and make a model of an item of playground equipment *eg slides, swings, roundabouts, climbing frames and adventure playground equipment*.

This unit could be adapted by using an alternative context which focuses on making frameworks *eg furniture for a house or garden*. Unit 1D 'Homes' is an appropriate alternative to this unit.

PRIOR LEARNING

It is helpful if the children have:

- used construction kits to construct models
- assembled and joined framework structures

This unit builds on Unit 1A 'Moving pictures'.

VOCABULARY

In this unit, children have to use words and phrases relating to:

- designing *eg drawing, user, model, plan*
- making *eg equipment, parts, construction kits, join, fix*
- knowledge and understanding *eg framework, movement, structure, weak, strong, on top of, underneath, side, edge, surface, thinner, thicker, corner, point, symmetrical edge, straight, curved*
 - names and shapes of materials which are used in full-size playground equipment *eg metal, wood, plastic*
 - types of playground equipment *eg swing, see-saw, roundabout, climbing frame, slide, rocking horse*
 - names of mathematical 2D shapes *eg circle, triangle, square, rectangle* and 3D shapes *eg cuboid, cube*

RESOURCES

- books, photographs of playground equipment
- construction kits, including kits which can be used to construct semi-rigid frameworks
- sheet materials *eg paper, card, plastics*
- reclaimed materials *eg small containers, egg boxes, cotton reels*
- string, adhesive tape
- joining materials *eg glue, plasticine or similar modelling material*
- finishing materials *eg paint*
- scissors, snips, hole punch, stapler

EXPECTATIONS

at the end of this unit

most children will:

have investigated a range of actual items of playground equipment; have joined construction kit components together and combined them with other materials *eg card, reclaimed materials, doweling and string*; have successfully constructed a realistic model of an item of playground equipment; have assembled their model with accuracy and be able to talk about how it is appropriate for the intended user

some children will not have made so much progress and will:

have used construction kit components, selected by the teacher to ensure that they are appropriate; have constructed their models mainly from one type of kit and will have followed instructions or plans

some children will have progressed further and will:

have used a wider range of materials and construction techniques; have incorporated some type of movement into their model; have easily identified what is and what is not working well with their model

LEARNING OBJECTIVES

POSSIBLE TEACHING ACTIVITIES

LEARNING OUTCOMES

POINTS TO NOTE

CHILDREN SHOULD LEARN

CHILDREN

INVESTIGATIVE, DISASSEMBLY AND EVALUATIVE ACTIVITIES (IDEAs)

- to relate the way things work to their intended purpose
 - how materials and components have been used, people's needs, and what other users say about them
 - to collect and sort information
- Visit a local playground to investigate the items of equipment found there. *Why do we have playgrounds? Is the play equipment good? Why? Do we need special equipment to play with? Ask the children to name the different parts of the equipment. What materials have been used? Why have these been chosen? How have the parts been joined together?*
 - Ask the children to draw the equipment at the playground.
 - Children could carry out a survey of favourite items of playground equipment.
 - Children could examine smaller items of outdoor play equipment that are sold for use at home.
 - Children could make a collection of pictures of different outdoor play equipment from magazines and catalogues. *Who are they for? How have they been made?*

- recognise the simple features of the playground equipment
- investigate how materials and components have been used in the play equipment and have a basic idea of how the items have been assembled

Links to this unit
Design and technology: Units 2C 'Winding up', 3D 'Photograph frames'
Science: Units 1C 'Sorting and using materials', 1E 'Pushes and pulls', 2E 'Forces and movement'
Information technology: Units 1A 'Assembling text', 1B 'Using a word bank', 1E 'Representing information graphically: pictograms'
Mathematics: Number (before, after, between, largest, smallest, how many, roughly, too many, too far), handling data (sorting, identifying most/least popular), measurement (length, balance, heavy, light)
Literacy: The class should discuss how to phrase and punctuate questions as part of their survey *eg considering words which signal a question*. Use collections of words from the topic to reinforce understanding of alphabetical order

Speaking and listening: Describing observations

Content

- Figures from construction kits could be used to give an idea of scale and also to test out the models.
- The completed models could be displayed together to make a model playground. Add photographs and children's drawings from their investigations of full-size equipment to the display.
- Evaluation of the models will be tricky. It is not possible to assess how effective it is as playground equipment. Therefore, focus on the effectiveness of the model making.

Class management

- Ensure that adult helpers are clear about the learning objectives and outcomes related to the visit to the playground.
- Both the IDEAs and the FPTs could be whole class sessions with follow-up work done in small groups (between four and six children).
- Children could work in small groups for the DMA at different times or, if there is sufficient equipment and adult support, at the same time.
- Another way to manage the focused task is to ask each group of children to explore one piece of playground equipment *eg swing, slide, roundabout, rocking horse*. Ask them to make a model and tell the rest of the class how they got their model:
 - to be strong enough
 - to be stiff enough
 - to be stable enough
 - to move properly
 - to be safe enough
 Then ask each group of children to choose a particular type of playground ride and make the most exciting version given what they have learnt.
- A simple recording sheet may be useful for children to record notes and drawings made during their investigations.
- Take still or video photography for future reference in school.

Health and safety

When carrying out a risk assessment for this activity, teachers will need to consider the materials, tools and equipment being used.

In addition to this, the following point should be noted:

- items of playground equipment should be tested under close adult supervision

Out-of-school activities and homework

Children could be encouraged to make models of playground equipment using construction kits and other materials at home.

FOCUSED PRACTICAL TASKS (FPTs)

- to assemble, join and combine materials and components together using a variety of temporary methods
 - to make their structures more stable and able to withstand greater loads
 - to recognise shapes and their application in simple structures
- Discuss how modelling is used by designers to develop their ideas and test their products.
 - Show the children how to construct a square or rectangular frame using construction kit framework components. Show them how they could make the frames more stable and able to withstand greater loads *eg by adding further kit parts or materials such as string or card, or by adding supports*.
 - Ask the children to construct a slide using bricks from a construction kit. Show the children that a strip of card could be used for the slide part to make it more slippery. Try out the slide using a model figure.
 - Ask the children to construct a frame for a swing using suitable construction kit parts. Show the children how a seat could be made from a small cardboard box, or a section from an egg box. Show how the seat can be made to swing by attaching it to the frame using string, wool or other thread.
 - Show how, and give the children the opportunity, to combine components from different construction kits using small pieces of masking tape, rubber bands or string. They could be given the task of making a see-saw using such techniques.

- use a limited range of materials and techniques to assemble and join components to make realistic models of playground equipment
- make their playground structures more stable *eg by using a wide base and able to withstand greater loads eg by adding a support to their swing or climbing frame*

DESIGN AND MAKE ASSIGNMENT (DMA)

Design and make models of equipment for a playground

- to draw on their own experience to help generate ideas
 - to use the appropriate vocabulary for naming and describing the equipment, materials and components they use
 - to make models which reflect their ideas
 - to evaluate their products as they are developed, identifying strengths and possible changes they might make
- ★ Explain to the children that they are going to design and make models of equipment for a playground. Discuss the intended user *eg very young children*, and the type of equipment that the user would like *eg the playground could be either traditional, adventure style or based on a particular theme*.
 - ★ Recap on their previous learning related to playgrounds and ensure that the children are aware of the construction kits and other materials available for them to use.
 - ★ Give the children an opportunity to discuss their ideas and to explain in both pictures and words what they would like to make. *What could you do? How could you do this? What do you need to know? Who could you ask? What does the model need to do?*
 - ★ Encourage the children to incorporate other materials *eg card, string or reclaimed materials* to make the construction kit models more realistic.
 - ★ Encourage the children to use the correct vocabulary for naming the construction kit components that they are using, and the parts of the playground equipment that they are creating.
 - ★ At certain stages gather the children together to talk about their work so far. *How will you make it stable? How could you make it stronger?*
 - ★ Encourage the children to evaluate their own work and that of others in a positive manner. *Is the equipment that you have made suitable for the intended user? Is the model stable? Is it fun to use?*

- apply what they have learnt through IDEAs/FPTs in their designing and making
- use the correct names of the construction kit components and other materials
- use materials and components to model ideas
- make judgements about the outcome of their work *eg the climbing frame is strong and will not tip over*

- essential activities
- ★ assignment stages (all are essential)
- optional activities

