

Design & TECHNOLOGIES:

Years 1-2



- Section 1:**
Green And Clever Designs
- Section 2:**
How Things Move
- Section 3:**
Where Do Things Come From?
- Section 4:**
Materials And Design

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Curriculum Links

Identify how people design and produce familiar products, services and environments and consider sustainability to meet personal and local community needs (ACTDEK001)

Elaborations

- exploring how local products, services and environments are designed by people for a purpose and meet social needs, for example the range of shelters provided for the public in a local community; graphical displays to market school and community events
- asking questions about natural and managed environments and impacts on them when selecting materials, tools and equipment when designing and making products, for example harvesting products from the school garden and using recycled clothing
- making design decisions based on personal and family needs, for example downloading and comparing recipes to suit available cooking facilities such as cooking in the bush compared to cooking in a kitchen
- exploring and critiquing products, services and environments for their impact on sustainability, for example the environmental risks and benefits of a system for organically or biologically growing a vegetable crop from seed or seedling to harvest

Explore how technologies use forces to create movement in products (ACTDEK002)

Elaborations

- exploring how the principles of push and pull are used in the design of toys, for example in a spinning toy such as an Aboriginal mammandur
- identifying, and playing and experimenting with, components such as wheels, balls, slides, springs and available local materials, tools and equipment to solve problems requiring movement
- selecting materials to demonstrate how material properties are appropriate for

particular designed solutions, for example materials that enable sliding or floating

- exploring a system such as a marionette or Indonesian wayang kulit shadow puppet to see that by combining materials with forces movement can be created
- combining materials and using forces in design, for example designing the door on a cage or a simple conveyor belt to move materials short distances
- exploring how to manipulate materials using a range of tools, equipment and techniques to create movement, for example when constructing a toy boat that floats and moves

Explore how plants and animals are grown for food, clothing and shelter and how food is selected and prepared for healthy eating (ACTDEK003)

Elaborations

- exploring which plants and animals can provide food or materials for clothing and shelter and what basic needs those plants and animals have
- identifying products that can be designed and produced from plants and animals, for example food products, paper and wood products, fabrics and yarns, and fertilisers
- considering the suitability of a range of tools when cultivating gardens, mulching and building garden structures and preparing and cooking food from recipes
- identifying and categorising a wide range of foods, including Aboriginal bush foods, into food groups and describing tools and equipment needed to prepare these for healthy eating
- exploring how people from different cultures including those of Asia design and produce different cuisines based on the plants and animals in their region and available tools and equipment
- exploring the tools, equipment and techniques used to prepare food safely and hygienically for healthy eating

Curriculum Links

Explore the characteristics and properties of materials and components that are used to produce designed solutions (ACTDEK004)

Elaborations

- exploring designed solutions to meet individual, family and community needs with a focus on materials, for example fabrics used for sports clothing, soft fall for play spaces
- developing new meanings for objects and action during play, for example exploring how household packaging can be used to represent other objects
- exploring systems used in the classroom or community for creatively dealing with problems and needs, for example storage systems for equipment, traffic system flow for drop and go zones, the use of hoists and ramps to facilitate access
- exploring facilities in local environments for accessibility and environmental impact, for example location of bike tracks and sporting fields using digital maps to view local area
- exploring materials, components, tools and equipment through play to discover potential uses when making products or modelling services and environments, for example when designing and making clothes, toys and shelter
- experimenting with techniques to combine or alter materials to satisfy function

Explore needs or opportunities for designing, and the technologies needed to realise designed solutions (ACTDEP005)

Elaborations

- identifying, gathering and playing with materials, components, tools and equipment to generate personal design ideas, for example designing a greeting card for a friend
- exploring opportunities around the school for designing solutions, for example how school play areas could be improved; how the school removes classroom waste and identifying opportunities to reduce, recycle and re-use materials; reviewing the

school canteen menu to identify healthy food options and suggesting changes to promote future good health

- discussing possible designed solutions based on experience and some research, for example asking adults for advice
- considering the importance of sustainability in designed solutions, for example comparing the durability of materials for a selected solution
- exploring which tools, equipment and techniques to use with selected materials

Generate, develop and record design ideas through describing, drawing and modelling (ACTDEP006)

Elaborations

- comparing and contrasting features of existing products to provide new ideas, for example exploring toys with several movable parts with the view to designing and making a simple puppet with one movable part
- communicating design ideas by modelling, and producing and labelling two-dimensional drawings using a range of technologies to show different views (top view and side view), for example a new environment such as a cubby house or animal shelter
- recording a judgement about design ideas with teacher guidance, for example expressing own likes and dislikes about a design idea
- identifying one common testing method, and recording results, for example taste-testing comparisons of a food product and recording results in a digital form
- describing how design ideas meet the needs of those who will use the solution

Use materials, components, tools, equipment and techniques to safely make designed solutions (ACTDEP007)

Elaborations

- using and playing with everyday materials in new ways or re-using discarded materials, for example using discarded

Curriculum Links

- materials to design, make and model a constructed environment
- learning and safely practising a range of technical skills using tools and equipment, for example joining techniques when making products, watering and mulching gardens, preparing food, using software to design an environment
- assembling components of systems and checking they function as planned, for example when making a musical instrument
- reflecting on the processes and challenges of designing and producing a solution and sharing these reflections using digital technologies, for example when growing a food product, designing a structure to take a load or making a nutritious snack
- suggesting areas for design improvement

Use personal preferences to evaluate the success of design ideas, processes and solutions including their care for environment (ACTDEP008)

Elaborations

- developing criteria for success with teacher guidance including consideration of impact on environment
- recording a judgment about design ideas with teacher guidance, for example expressing own likes and dislikes about a design idea
- checking that planned features have been included in design plans and drawings by referring to identified criteria for success including care for the environment
- using maps or mapping when planning and making, for example when planning an electronic planting calendar
- recording the procedure for making a product, for example a recipe or instructions for making a container
- identifying roles for each member of a group when working collaboratively

Sequence steps for making designed solutions and working collaboratively (ACTDEP009)

Elaborations

- checking that planned features have been included in design plans and drawings by referring to identified criteria for success including care for the environment
- using maps or mapping when planning and making, for example when planning an electronic planting calendar
- recording the procedure for making a product, for example a recipe or instructions for making a container
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Teachers' Notes

This book has been written with young children in mind. Many of the lessons are very hands on and will involve the children teaming up and doing lots of practical activities.

At the beginning of each section, there are notes for the teachers about how to introduce lessons; suggested answers and suggested extended activities.

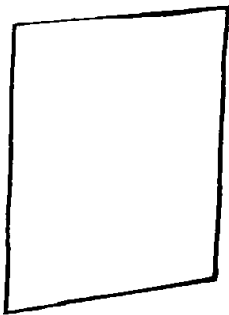
A few of the lessons have been developed in a series to give the children the opportunity to delve a little more deeply into some of the concepts explored in the Design and Technology curriculum.

All worksheets can be completed at each child's individual level. The focus is not on their reading or drawing ability but about their knowledge and understanding of the world.

I am confident that teachers will find the lessons simple and easy to follow whilst still ensuring that the children really get the chance to understand the meaning behind the elaborations included in the curriculum that each lesson aims to target.

Our government has tried to help us be more friendly to the environment by developing a better bin system! Most households have two or maybe three bins provided by the local council, especially designed to encourage us to recycle.

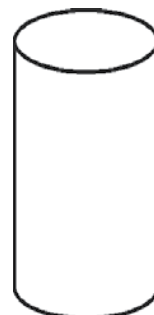
You and a friends have agreed to help tidy up the school yard. You find the 'litter' below lying around. Each one needs to go in one of three bins specifically designed for: rubbish, recycling and green waste. Cut out all the pictures and discuss with your friends which bin you should put each piece of 'rubbish' in. Sort them on your desk.



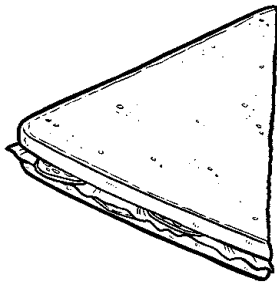
piece of paper



lolly wrapper



toilet roll tube



half a sandwich



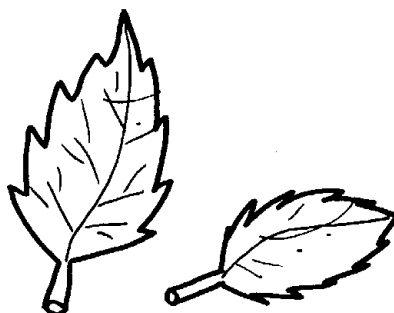
empty glass bottle



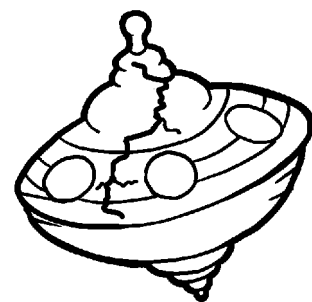
grass cuttings



small branches

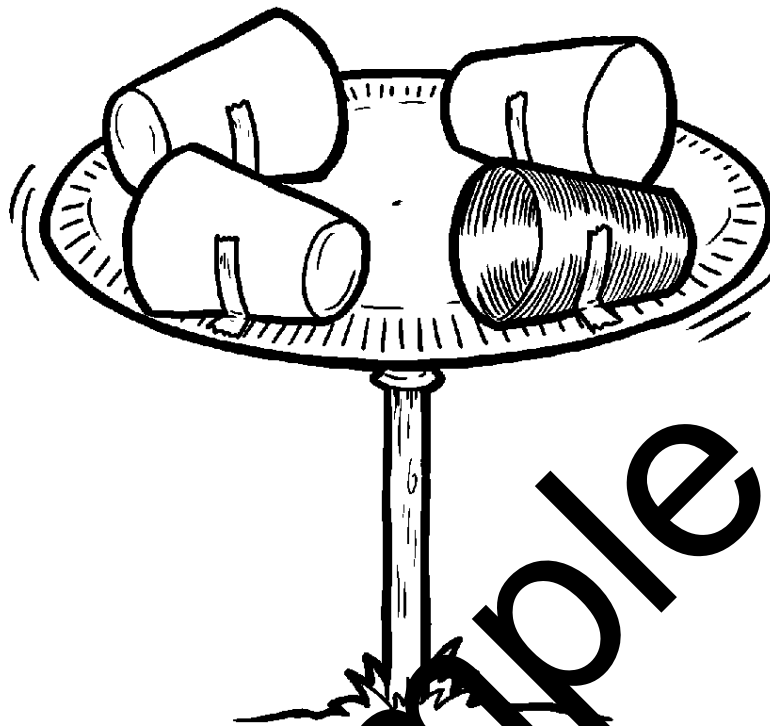


leaves



broken plastic toy

- ☐ We can put materials together to make them spin! Follow the procedure below, to make a spinning wheel.

**Materials needed:**

- paper plate
- cotton reel
- dowel (1 cm x 30 cm)
- double-sided tape
- adhesive tape
- 4 paper/plastic cups

Steps:

1. Use tape to stick the cups evenly on top of the paper plate as shown in the picture.
2. Use double-sided tape to stick the cotton reel to the bottom of the plate.
3. Push one end of the dowel into the centre hole of the cotton reel and the other in the ground.

How to make it move:

The plates will spin around if you place your spinning wheel outside when there is some wind. The cups will catch the wind and move.

Alternatively use your breath to make the wheel spin or a fan!

Activity Preparing Food 2

☐ There are many carefully designed kitchen tools that help us to prepare our food.

☐ Look at the picture, then answer the questions and complete the tasks.



COLOUR!

1. Colour the grater; the peeler; the knife and the chopping board.
2. Why is it important that these tools are clean before we use them?

HANDS!

3. What about our hands? What is the number one rule before preparing or eating food? Write this rule in the speech bubble above.
4. Why should we do this?

- ☐ Use the space below to design your own sock puppet. Draw eyes, a nose and a mouth or whatever else you want and think about what you will use to create them on your real puppet. Annotate your design to say why the materials 'work' well. Now, get an old sock and make your puppet come alive!



Activity Perfect Designs 2

- ☐ Step 1: Cut out the pictures at the bottom of the page.
- ☐ Step 2: Glue to create your perfectly designed playground. Draw to add to it. Remember to think about space; safety; materials; objects included.
- ☐ Step 3: Annotate your design with information about layout and materials.

