Find Out

Children are naturally inquisitive and want to know about the world around them. Experiences that encourage children to question how or why things happen are a science experience. This week in Play School we adopt a "finding out" attitude and explore our environment in a scientific way. Over the week we look at colours, magnets, batteries, flying, chemical reactions and movement. Through a mixture of play, observation, music and storytelling we "find out" together.

Children are continually developing skills in thinking, reasoning and observation. To help introduce science concepts and extend language skills, the presenters use appropriate science terms in a context to encourage their understanding. Open-ended questions are posed such as "What do you think would happen if...?"to extend thinking and encourage exploration.

Every day this week our resident scientist, Ruben, and a small group of children, conduct simple experiments - looking at how things dissolve, making a simple electrical circuit, making an object fly and observing chemical reactions and chain reactions caused by moving objects.

Monday

PRESENTERS
Andrew McFarlane - Emma Palmer

PIANIST
Peter Dasent

STORY
"Bears on Chairs" by Shirley Parenteau. Used by permission of Curtis Brown, Ltd.

FILM
Baby Evangeline Has a Bath
(Play School, ABC)

ANIMATION
Here is the Sea
(Play School, ABC)

IDEAS FOR LATER
- Use an eye dropper, food colouring, and some water to experiment mixing colours! Start by filling the cells of an empty egg carton with water. Then, use food colouring to make one cell red, one cell yellow, and one cell blue. Use an eyedropper to mix the colours you have made in the empty egg cells! What new colours can you make? You might like to use them to make a picture on white paper towel.
- Add a few drops of food colouring to a jar of water. Place a stalk of celery or a daisy in the jar and observe how the coloured water travels through it.

SONGS

Spots are Great
Composers: Peter Dasent & Mark Barnard
Publisher: Origin/Control

What Shall We Do?
Composers: Peter Dasent & Mark Barnard
Publisher: Origin/Control

All the Fish Are Swimming in the Water
Composer: Beatrice Landeck
Publisher: J Albert & Son

Splish! Splash! Splosh!
Composers: Peter & Robyn Mapleson
Publisher: ABC Music Publishing

When I Was a Baby
Composer: Traditional
Publisher: Origin/ABC Music Publishing

Move Over and Make Room For…
Composer: Traditional
Publisher: Origin/ABC Music Publishing

SCIENCE EXPERIMENT
Today Ruben mixes different things in water to see what dissolves and what doesn't. He also makes a pretty pattern with sugar coated chocolate buttons!

MAKE AND DO

How to Make a Surprise Picture

You will need:

- A white candle
- Paper
- Watercolour paints

Draw a picture on white paper with the end of an unlit candle.

Wash over with watercolour paint to reveal your surprise picture!

Tuesday

PRESENTERS
Alex Papps – Karen Pang – Sofya Gollan

PIANIST
Peter Dasent

TOLD STORY
The Marvellous Robot
(A story told by the Play School team)

FILM
Scrap Metal Yard
(Play School, ABC)

IDEAS FOR LATER

- Attach a piece of paper to a wall and get a friend to sit on a chair in front of the paper. Get another friend to shine a torch on the seated friend so a shadow of their head is made on the paper. Use a pencil to draw around your friend's profile. Experiment with what happens when the light is closer to the person or further away. Is the shadow bigger or smaller? Take turns having something drawn – a head, a hand etc. When the drawings are finished, cut them out and decorate them.
- Place a piece of paper on a thin plastic plate. Dip some metal objects in paint and place them on the paper. Move a magnet under the plate and watch the objects move around and paint the paper!

SONGS

There is Something that is Hiding (There is Someone Who is Hiding)
Composer: Henrietta Clark
Publisher: ABC Music Publishing

Rain Song
Composer: Traditional
Publisher: Origin/ABC Music Publishing

R.O.B.O.T
Composers: Vanessa & Karina Johnston
Publisher: Jingle Jam Pty. Ltd.

What Do You Think My Name is?
Composer: Warren Carr
Publisher: ABC Music Publishing

SCIENCE EXPERIMENT
Today Ruben explores a simple electrical circuit using play dough and LEDs. Any traditional play dough recipe that includes salt will conduct electricity. Play dough made without salt will not. See instructions on how to conduct this experiment at home below!

MAKE AND DO

How to Play "Hide and Fish"

You will need:

- A wooden spoon
- Ribbon
- Large magnet
- Objects to hide, some made of metal and others not
- Scraps of fabric

Tie the large magnet to the wooden spoon using a length of ribbon to make a fishing rod.

Hide your collection of metal and non-metal objects under fabric scraps on a table or on the floor.

Use the fishing rod to attract objects. Which objects attach to the magnet and which don't?

How to Make Shadow Puppets

You will need:

- A sheet
- A length of string or rope
- Pegs
- A torch
- Toys and/or objects

Tie a length of string or ribbon up between two chairs, or similar.

Peg the sheet up on the line.

Shine the torch behind the sheet.

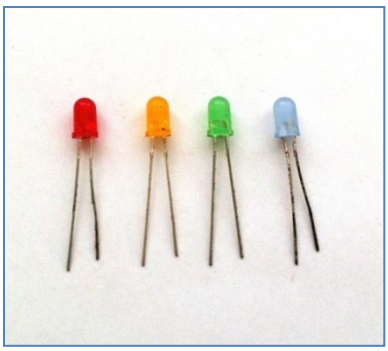
Take turns to make shadows using toys and other objects.

SCIENCE EXPERIMENT

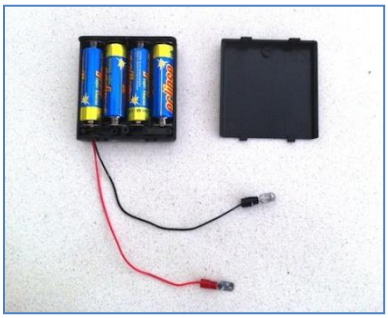
Play Dough Circuits

You will need:

- Conducting play dough (recipe below)
- Non-conducting play dough (recipe below)
- LEDs (Light Emitting Diodes)
- 4 x AA battery pack (with terminals)



What is an LED?
LED stands for Light Emitting Diode. LEDs produce less heat and use less energy than ordinary light bulbs. Another big difference is that electricity can only flow through an LED in one direction. If your LED does not light up in a circuit, you might need to turn it around.



Why 4 x AA Battery Packs
LEDs won't work in a play dough circuit with a single AA battery. That's because they require a minimum voltage to operate. You will also need to solder terminals onto the battery pack wires. This improves contact with the play dough. Terminals are available from the same stores that sell battery packs.

Conducting Play Dough Recipe

Any traditional play dough recipe that includes salt will conduct electricity. This recipe works well but you can also use play dough from a toy store.

Ingredients:

- 1 cup plain flour
- ½ cup salt
- 3 tbsp cream of tartar
- 1 tbs vegetable oil
- Food colouring of your choice

Procedure:

1. Add food colouring to the water first. Next, mix all the ingredients in a saucepan and stir thoroughly.

2. Cook on low heat and stir continuously until a ball forms. Remove from heat. Place dough ball on a lightly floured baking tray to cool.

3. Knead more flour into the lump if necessary to obtain the desired play dough consistency.

Non-conducting Play Dough Recipe

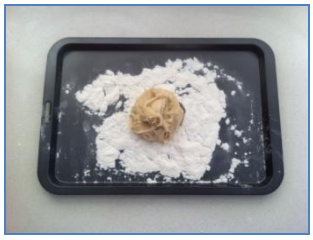
Ingredients:

- 1 cup plain flour
- 1/2 cup pure icing or caster sugar
- 3 tbsp vegetable oil
- 1/4 cup demineralised water*

* Demineralised water is available from grocery stores. It improves the electrical resistance of the dough but tap water may suffice.

Procedure:

1. Pour flour and sugar into a bowl and mix thoroughly. Add vegetable oil. Mix by hand until the oil, flour and sugar are evenly mixed.



2. Add two tablespoons of demineralised water and mix thoroughly. Add remaining water, one tablespoon at a time. Transfer the sticky dough to a lightly floured baking tray.

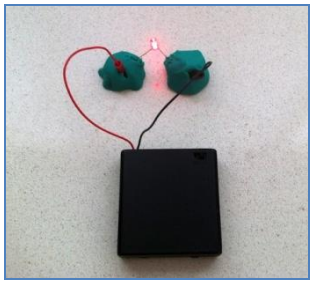
3. Knead in more flour until the dough stops feeling sticky.

Make a Circuit

An LED glows when electricity flows into one 'leg' and out of the other. To make electricity flow through an LED, it needs to be part of a circuit.

Note: electricity only flows through LEDs in one direction, so if your circuit does not work, turn the LED around.

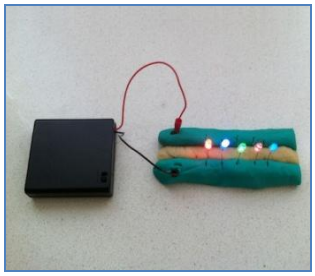
Procedure:



1. Make two small lumps of conducting dough. Poke one of the battery wires into each lump. Bend the LED legs and poke one into each lump (turn the LED around if it doesn't light up).

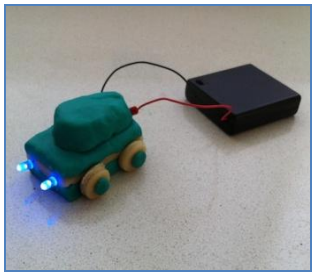
2. Push the lumps together so they touch and the LED turns off. This happens because electricity flows through the conducting dough more easily than through the LED. This is called a short circuit.

3. Use a small lump of the non-conducting dough to separate the two lumps. The LED lights up again even though all the lumps are touching. Electricity does not flow through the non-conducting dough very easily.



4. To light up more LEDs, make two long worms of conducting dough. Put a long worm of non-conducting dough between them. Poke one wire into each of the conducting dough worms. Now poke in as many LEDs as you like. This is called a parallel circuit.

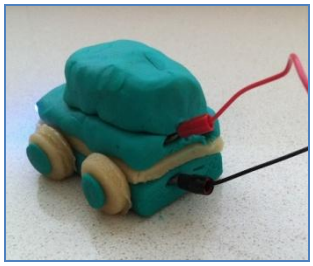
Making Play Dough Creations



To light up your sculptures, make a play dough sandwich with non-conducting dough in the middle.

Poke the LED's legs and battery wires into the conducting dough and your sculpture will light up.

Remember, electricity only flows through LEDs in one direction. If your LEDs do not light up, switch the wires around.



Once your circuit is working, add more play dough to make any shape you like. Just remember to keep the conducting parts of the sandwich apart.

Wednesday

PRESENTERS
Rachael Coopes – Alex Papps

PIANIST
Peter Dasent

STORY
Can I Cuddle the Moon?
by Kerry Brown and Lisa Stewart, Scholastic Australia, 2010

FILM
Kites
(Play School, ABC)

IDEAS FOR LATER

- Make a ping pong painting! Fasten a large sheet of paper to the floor (alternatively, if you're worried about mess, take the paper outside and lay it on the ground). Dip a few ping pong balls in different coloured paint and place them on the paper. Use straws to blow the balls over the paper and make colourful patterns!
- Make a balloon jet from a balloon, a plastic straw, masking tape and some string. Thread the string through the straw and tie it tightly between two chairs or get two friends to hold either end. Blow up the balloon and, holding the end tightly, tape it to the straw. Let the balloon go and watch the pushing power of air!

SONGS

Like a Leaf or Feather
Composer: Mary Champion De Crespigny
Publisher: EMI Music

Two Little Boats
Composer: Traditional
Publisher: Origin/ABC Music Publishing

Blow up a Balloon
Composer: Lucille Wood
Publisher: Bowmar

Hey Diddle Diddle
Composer: Traditional
Publisher: Origin/ABC Music Publishing

Fa La Nana
Composer: Italian Traditional
Publisher: ABC Music Publishing

SCIENCE EXPERIMENT
Ruben makes a balloon helicopter with a bendy straw and a balloon.

MAKE AND DO

These are two simple water experiments for fun in the bath or in a large water trough.

How to Make a Sailing Boat

You will need:

- A recycled plastic takeaway container
- Tac
- A chopstick
- Coloured paper
- Safety scissors
- Tape
- Straw

Stick a blob of tac in the bottom of the recycled plastic takeaway container.

Stick the chopstick in the tac for a mast.

Cut a triangle sail from coloured paper and tape to the chopstick.

Place the boat in a water trough or in the bath and use the straw to blow the boat from one end to the other.

Air Experiment

You will need:

- A large PET bottle with a lid
- A funnel
- A large jug of water
- Water
- A straw
- Tac
- A balloon

Ask an adult to make a hole, about the same size as the width of a straw, a few centimetres from the bottom of the large PET bottle.

Place a funnel in the top of the PET bottle and, holding the bottle in the bath or over a large water trough, fill the bottle with water using a large jug. Watch as the water comes out the hole.

Fill the PET bottle with water again but, this time, quickly screw on the bottle lid. When the lid is on, the water will stop coming out the hole!

Empty the bottle again and, this time, push a straw through the hole you made. Wrap tac around the straw to ensure a tight seal.

Fill the bottle with water, up past the hole, so the straw inside the bottle is completely covered with water. No water will come out the straw.

Blow up a balloon. Pinch the end so no air can escape and fit the balloon over the rim of the bottle. When you let go, the air will come out of the balloon and push the water out through the straw like a fountain!

Thursday

PRESENTERS
Karen Pang – Andrew McFarlane

PIANIST
Peter Dasent

TOLD STORY
Dino Swamp Stomp
(A story told by the Play School team)

FILM
Paint Factory
(Play School, ABC)

IDEAS FOR LATER
- Put an ice cube in a small bowl of water. Wet a 30 centimetre piece of string and lay it on top of the ice cube. Sprinkle a pinch of salt over the ice cube and string. Wait two minutes. Can you pick up the ice cube with the string?
- Experiment with some items found in the kitchen to discover what dissolves in water. Try salt, sugar, coffee, pop corn, flour, oil and jam. What dissolved, what partly dissolved and what completely dissolved?

SONGS

Round and Round and Round
Composer: Colin Buchanan
Publisher: Rondor

Singing in the Kitchen
Composer: Shel Silverstein
Publisher: Universal

The Dino Stomp
Composers: Judith Simpson & Max Lambert
Publisher: ABC Music Publishing

Build it Up
Composer: Peter Charlton
Publisher: ABC Music Publishing

SCIENCE EXPERIMENT
Ruben mixes red cabbage water with egg whites, vinegar, lemon juice and baking powder. The water changes colour as it reacts with the different foods.

MAKE AND DO

How to Make Meringues

You will need:

- 2 egg whites
- ½ cup caster sugar
- 2 tablespoons mashed raspberries
- 2 tablespoons mashed blueberries

Preheat oven to 110°C.

Beat the egg whites in a large bowl, gradually adding the caster sugar as you go. Beat until the mixture is thick and glossy and soft peaks form.

Halve mixture between two bowls.

Fold 2 tablespoons of mashed up raspberries in with one half of the mixture and 2 tablespoons of mashed up blueberries in with the other.

Spoon mixture onto a lined baking tray. Each meringue should be about 2 level tablespoons of mixture.

Bake for 40 minutes, then turn off the heat and leave the meringues to sit in the cooling oven for 15 minutes.

How to Make a Shaving Foam Picture

You will need:

- A shallow container
- Shaving foam
- Different coloured edicol dyes
- A spoon or pencil
- Paper
- A piece of cardboard

Fill the container with shaving foam.

Gently squirt or eyedropper the dyes onto the foam.

Swirl the colours with a spoon or pencil.

Place a piece of paper on top to make a print.

Scrape the foam off with cardboard to reveal a marbled pattern.

Friday

PRESENTERS
Emma Palmer – Teo Gebert

PIANIST
Peter Dasent

STORY
The Rain Train
Written by Elena de Roo
Illustrated by Brian Lovelock
Walker Books Australia

FILM
Building a Brick Wall
(Play School, ABC)

IDEAS FOR LATER

- Set up a piece of cardboard or wood to form a ramp. Find some toys and see which ones will travel the furthest down the ramp. Which ones roll better? Experiment with different inclines. Do the toys move faster on a steep incline?
- Tear up tiny pieces of tissue paper and put them in a shallow bowl. Blow up a balloon and tie a knot in the end. Rub the balloon on your t-shirt or a woolly jumper. Hold the balloon over the bowl and watch the paper fly up to the balloon - static electricity at work! Rub the balloon again and hold it near a friend's hair – observe what happens.

SONGS

Build it up
Composer: Peter Charlton
Publisher: ABC Music Publishing

Here's a House
Composers: John Fox & Warren Carr
Publisher: ABC Music Publishing

Wheels on the Bus
Composer: Traditional
Publisher: Origin/ABC Music Publishing

Choo Choo Vamos a Pasear
Composer: Spanish Traditional
Publisher: Origin/ABC Music Publishing

Listen
Composers: Henrietta Clark & Warren Carr
Publisher: ABC Music Publishing

Driving in My Car
Composers: Peter Dasent & Sophie Emtage
Publisher: Origin/Control

SCIENCE EXPERIMENT
Today Ruben uses a ball to create a chain reaction to push a toy car into a garage.

MAKE AND DO

How to Play "Topple the Tower"

You will need:

- Paper
- Masking tape
- Books

Fold a sheet of paper into four sections and tape together to make a square tower.

Roll another sheet of paper into a cylinder and tape to make a round tower.

Stack books on the towers to test their strength. Which tower can hold the most books?

For a longer experiment, use four towers for each book stack so the books are easier to balance. You'll be amazed at how many books the round towers can withstand!