

# SCIENCE







## Lesson 2

Prep

### Topic: Investigating materials and properties

#### Investigating the effects of water

##### Lesson concepts

-  Objects are made of materials that have observable properties
-  Science involves exploring and observing the world using the senses
-  Questions can obtain responses
-  Observations can be made using the senses
-  Observations can be discussed and ideas can be represented
-  Observations and ideas can be shared

#### Learning alerts

Be aware of students who don't recognise that it is the properties of materials that can change when wet — not the materials themselves.

#### Suggested next steps for learning

- Allow students to experience changes to properties when materials are wet. Ask students to name the material and describe its properties before the material is wet, and then name the material and describe its properties after it is wet.

Today students will:

- ▶ investigate the effects of water on different materials
- ▶ understand that water affects different materials in different ways because of the properties of the material.

## Resources

### Find and prepare

Sheet — Water investigation

#### *Optional*

Some examples of things that are designed to get wet, for example: umbrella, towel, pool toy, swimmers

Water (cup)

Eyedropper

Paper towel for spills

Materials to test, for example: pieces of different fabric/clothing (elastane, silk, wool), metal lid or coin, cardboard, tissue, tissue paper, paper, polystyrene, cellophane, old photo, sponge, rubber, flyscreen or mesh bag, sieve or tea strainer, piece of aluminium foil

Waterproof tray or dish to catch excess water

## Key terms

For definitions and explanations of terms, please see the [Glossary](#).

## Lesson

### Discuss situations where things get wet

#### Say to students

- ‘ In our science lesson today, we are going to look closely at the properties of different materials when we add water to them. We are doing this so we can think about which materials might be good for using as a wind ornament. Wind ornaments are usually hung outside and sometimes get rained on. ’

#### Focus questions

- Q: *What objects do you know that we allow to get wet?*  
A: For example: Bath toys, rain coat and boots, clothes (when we wash them), swimming togs, towels, dishes, umbrella.
- Q: *How might things get wet?*  
A: Rain, bathing, swimming, washing.
- Q: *What happens when a bath toy gets wet?*  
A: For example: Nothing, it is fine and we can dry it again and re-use it.
- Q: *What happens when your clothes get wet in the rain or from washing?*  
A: For example: They get soggy and stick to you but we can hang them out to dry.
- Q: *Have you ever seen an object get wet when it shouldn't have? Tell me about what you remember.*  
A: For example: Yes, mum jumped in the pool with her phone in her pocket and it doesn't work anymore; dad hates it when the mail gets wet because it goes soggy and he can't read it.



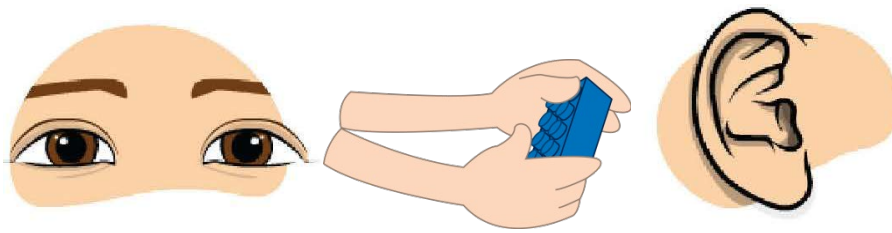
#### Say to students

- ‘ In our everyday lives, we use many different objects. Some of these objects we know we can wet and others are not made for getting wet. Adults often show us and tell us which objects we can get wet, but we can also get clues by observing the material the object is made from. ’

## Investigate the effects of water on materials

### Say to students

‘ In this lesson, we are going to investigate what happens to different materials when they get wet. When we are investigating in science we need to use our senses to make observations. Today, we will look, feel and possibly listen to materials as we observe them before, during and after they become wet. ’



1. Display a newspaper.

- Tear off pieces for students.

### Say to students

‘ We are going to observe the properties of the newspaper first before we wet it. ’

- Share ideas about the properties of the newspaper observed by touch, sight and sound.
- Crumple it and unfold it to see other properties.

### Say to students

‘ Now we are going to use an eyedropper to add some water to the newspaper. We will add the drops slowly so we can observe the effect. We will place the newspaper in a shallow dish so we keep everything else dry. ’

- Instruct the students to place the piece of newspaper in the dish and add drops of water as slowly as possible while you observe closely.
- Share ideas about what is happening.



### Say to students

‘ Now pick up the piece of newspaper and hold it over the dish. Observe it closely and try crumpling it and unfolding it. ’

### Focus questions

Q: *What do you observe?*

A: For example: The paper is really wet and soggy. When I crumple it, water is squeezed out then when I re-opened it, it tore into pieces.

### Say to students

‘ Now that we have tested what happens to the newspaper when it is wet, let’s look at what happens to a piece of plastic. ’

2. Give students a piece of plastic and ask them to:

- observe and describe its properties before wetting it
- put water on the plastic and observe what happens
- describe what is observed (i.e. the water runs off, there is no obvious damage).

### Say to students

‘ We say that the plastic is **waterproof**. This means that the water does not soak into the material but rather runs off and the material seems to be unchanged. If the plastic had holes in it, the water would run through, but it still wouldn’t soak into the actual material. The newspaper is not waterproof because the water soaks into the material and changes some of the properties of the material. ’

### Focus questions

Q: *Would you choose newspaper to hang on your wind ornament? Why or why not?*

A: For example: No, because when it rains the newspaper would get really soggy and will tear.

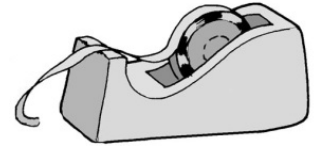
Q: *Would you choose the piece of plastic to hang on your wind ornament? Why or why not?*

A: For example: Yes, because it is waterproof and will be good out in the rain.



3. Display **Sheet** — [Water investigation](#).

- a. Write student's name on sheet.
- b. Read the headings of both columns of the table.
- c. Provide a dry piece of newspaper.
- d. Provide a small piece of plastic.
- e. Tell students to attach the samples in the column that they think fits best, i.e. good for a wind ornament or not good for a wind ornament.



**Say to students**

‘ You are now going to follow these same steps and test some different materials. As you test each one, decide if you think it would be good to use in a wind ornament or not and why. Tape or glue a dry sample of each material on your sheet. Begin testing now. ’

**Water investigation**

1. Pose a science question about the effects of water on materials.

2. Test and sort the materials you have water-tested into groups (good for wind ornament or not good). Tape a piece of each material into the matching column below.

✓ Good for a wind ornament	✗ Not good for a wind ornament

1. Explain what happened to some of the materials when water was added.

2. What are some properties of materials suitable for a wind ornament?

**Say to students**

‘ You now have some science knowledge about how water affects some materials. ’

4. Scribe student responses to the questions in the box at the bottom of **Sheet — Water investigation**.

## Determine the suitability of materials in wet conditions

### Say to students

‘ The objects and materials we use in our everyday lives are made out of different materials. Sometimes we need something to be waterproof and sometimes we don’t. If a fish tank wasn’t waterproof, it wouldn’t be very useful; it wouldn’t be able to hold water. A waterproof towel wouldn’t be suitable for drying ourselves as it wouldn’t soak up any water. ’



### Focus questions

Q: *What would happen if a water bottle wasn't waterproof?*

A: The water would leak out everywhere.

Q: *What would happen if our houses weren't waterproof?*

A: The rain would leak in and damage our things.

Q: *What objects can you think of where being waterproof is very important?*

A: For example: shower cap, cups, glasses, pools, bathtubs, water tanks, hot water bottle.