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# I have the **SOLUTION!**

Making observations and working safely in science

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# Safety in Science

*Taken from Safety and Science/Pūtaiao: Guidance for Aotearoa New Zealand Schools and Kura (MoE 2023)*

**Purpose:** The purpose of safety in Science at the primary level is to discuss the safety aspects of an activity, such as the need to wash hands after working in practical science, and that students should never taste, smell, or touch substances unless they have been told to do so.

**Food:** Food and drink must not be used in laboratory spaces (that is where hazardous substances are used or stored; this includes reticulated gas for Bunsen burners).

Care should be taken that children do not share utensils and that used utensils do not contaminate food sources. General hygiene should be considered when eating any food made in the class. Students should be taught how to correctly smell any substance. Food allergies of students/ākonga must always be considered.

## **For this activity:**

Consider- safety when making observations with our senses- is it safe to go around tasting things? Why not? What might happen? How should we keep ourselves safe?

In this investigation the substance is safe to taste- however what else should we consider?

Was everything clean to begin with, had the equipment been used for something else not safe to taste? Not sharing cups and utensils if we use them to taste. Wash our hands before and after if they go in our mouth. Why?

Is it safe for everyone in the class to do this activity- does anyone have allergies to food colouring or are diabetic?

Is it physically safe in the room, can we move around without bumping or knocking into things? Are we using glass or other breakable equipment- if so do we have a plan if there is an accident.

Are there any individual ākonga in the class that might need extra support to stay safe?

This doesn't need to be a long process - but should be considered by the teacher before the activity and the students should have an opportunity to "stop and think" and participate in the safety of the class- building a culture of working safely and looking out for each other.

# Making observations

Scientists notice the world around them using their 5 senses

This is making an **OBSERVATION**

ob ser va tion



- Do you know the 5 senses?

- Can you think of any other words which have similar sounds to the word observation?

Observe, observatory, .....



# 1. Activity

**We are going to make up two jugs of flavoured drink and make some observations.**

→ **Observe**

What do we see, smell, feel, hear, taste?

→ **What questions can we ask?**

→ **What do we think?**

→ **Why do we think that?**

Can we use our observations as evidence?



about safety in science

# How can we be sure we will be safe?

Is there anything we should think about before doing this activity?



## Discuss with class

In this activity, we are using our senses- could we do harm to ourselves? Is it always safe to **taste** things? How do we know when it is safe?

Is the equipment safe to use? Could something go wrong? If so what would we do?

Is this activity appropriate for ALL ākonga in the class? Allergies?

# Lets get doing

Now we have thought about being safe

Let us get on with being scientists

Remember to think about observations!



VISION HEARING SMELL TASTE TOUCH



Your teacher will give  
instructions

Your job is to be a scientist  
and think and act like a  
scientist



What did you see?



What did you taste?

# Did you observe?

Was it the same colour at the bottom and top before we stirred it?

What happened to the powder once the water was stirred?

Was it the same for both?

Were they both the same colour?

How did the two different jugs of juice taste?

What colour was the powder before it was added to the water?

What colour was the water before the powder was added?

Anything else?



# Sharing your science observations

## In your own words.



### Tip

Scientists try to share their observations in a way that are clear to others and try to create an agreed understanding.


They make statements.

Use a simple sentence:

The **noun** **looks** **adjective**.

The **noun** **tastes** **adjective**.

Would you write differently if this was for a story?



It looks orange.



The juice looks orange



The juice looks like the colour of the sun.



It looks really yummy!



These are all great observations. Which do you think is the most like an observation in science? Why?

# Why do we make observations?

Now we have made our observations we have  
**DATA**

Let us keep thinking like scientists

What **INFERENCES** can we make from our observations?

Our inferences need to be backed up with our observations

Where did the powder go?  
Why were the two jugs  
different colours?



What do you think?



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# What observations did you make?



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# What inferences can you make?



Are your inferences supported by your observations- could you make more observations to support your inferences?



# Reflections

## Did we work safely!

Is there anything we could have done better?

**Do we know how to make  
observations safely?**

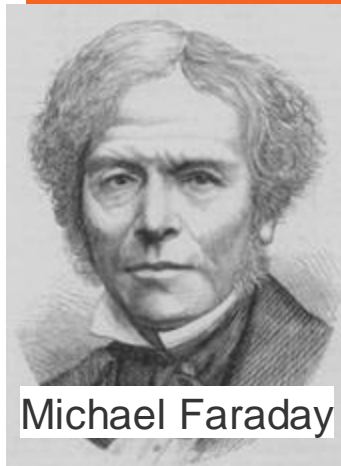
**Were our inferences backed  
up by our observations?**



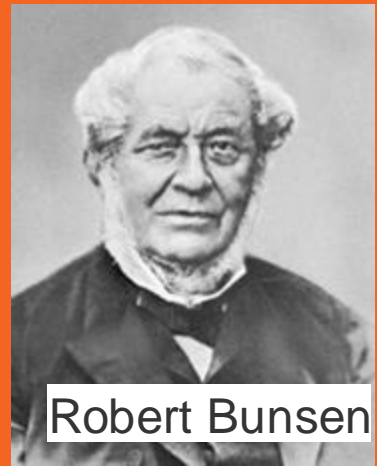
Louis Slotin



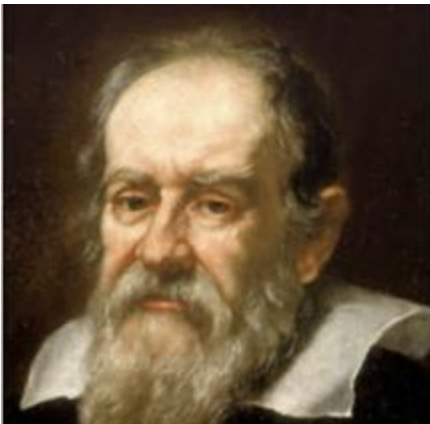
Marie Curie



Michael Faraday



Robert Bunsen



Galileo Galilei



Sir Humphrey Davy



Elizabeth Ascheim

### Safety in Science

Here are several famous Scientists from history who died or were serious injured as a result of being a scientist and not knowing enough about working safely at the time. There are many more!