

**Session Title: How do we find out about our world?**

**Objectives:**

1. State what is science and who are scientists.
2. Identify some skills and attitudes of scientists.

**Real-world Content/Context**

Students will learn how curiosity about observations in everyday life lead to them instinctively making meaning of their world and how sometimes making meaning without evidence can lead to error. They will be introduced to science as a way to guide their curiosity in forming evidence based interpretations.

**Life Skills**

**Condition**

Collaboration

Think Pair share

Problem-solving

Deductive Scientific Method/Engineering Design Process

Communication

Explain their ideas during phase 3 of the 5Es lesson

Creativity

Make predictions and communicate through creative writing and art work

**Content Notes**

Scientists carry out investigations to gain knowledge and find solutions to problems. They carry out the following steps:

1. Ask questions
  2. Brainstorm ideas or gather information
  3. Plan fair tests
  4. Carry out their plan, making changes if necessary
  5. Communicate their findings
- In conducting their work scientists display attitudes such as curiosity, honesty and persistence.
  - A fair test is an investigation carried out under the same conditions

**Attention Igniter (AI)**

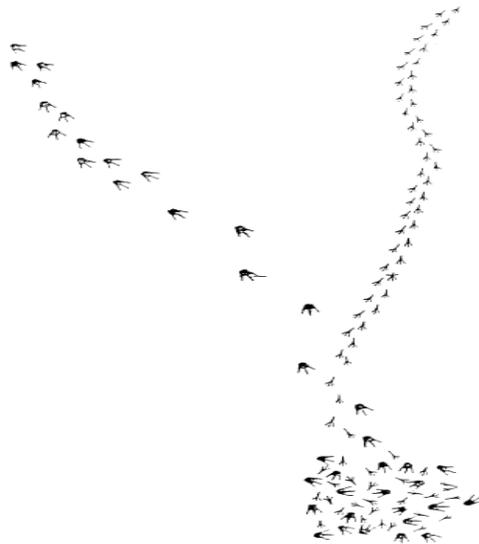


The teacher may print the images and allow the students to work in groups or show them on an OHP. The students are asked to observe the foot prints and write an account of what they observe

Accept all answers from the students

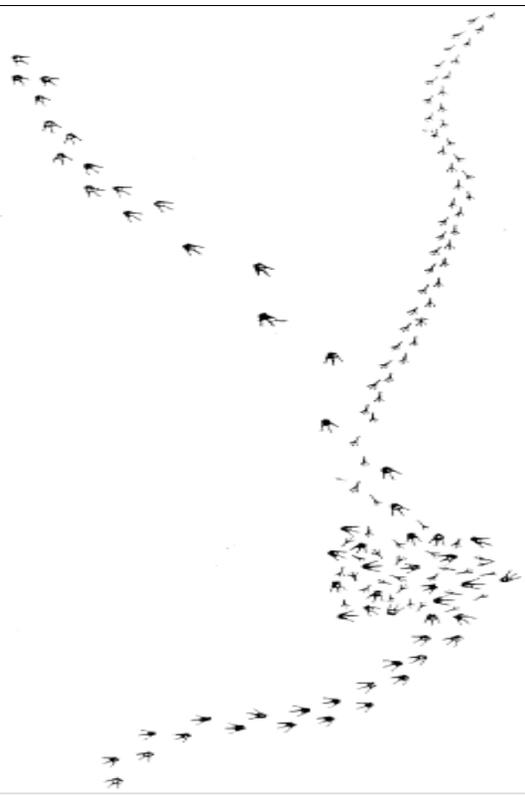
They could be expected to note size of foot prints, number of prints, say the animals are different. You should also expect some to give elaborate stories.

Use the responses to point out the difference between observation and interpretation.

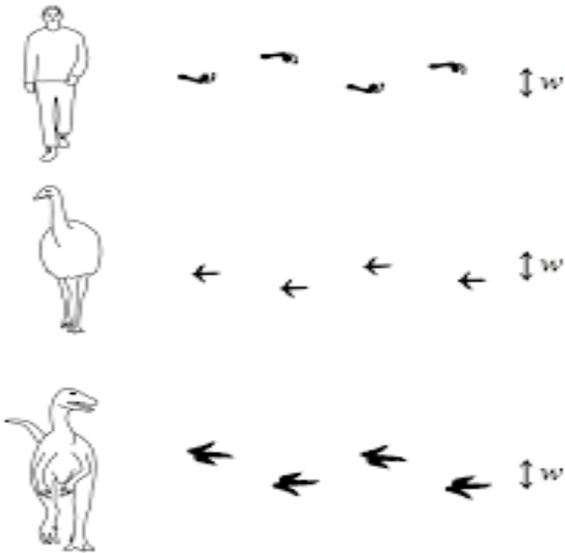


In this second image, do not accept any answers that provide interpretations

Question any information they give that is not evidenced on the image.



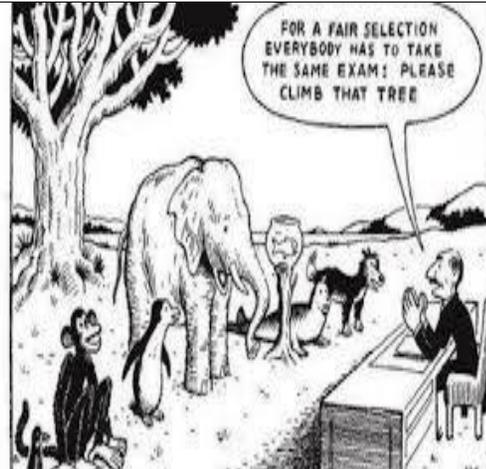
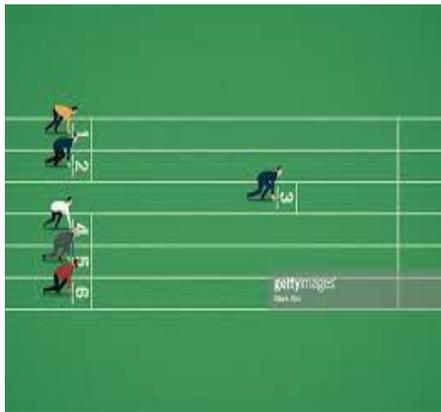
Use this in the same way as the previous image



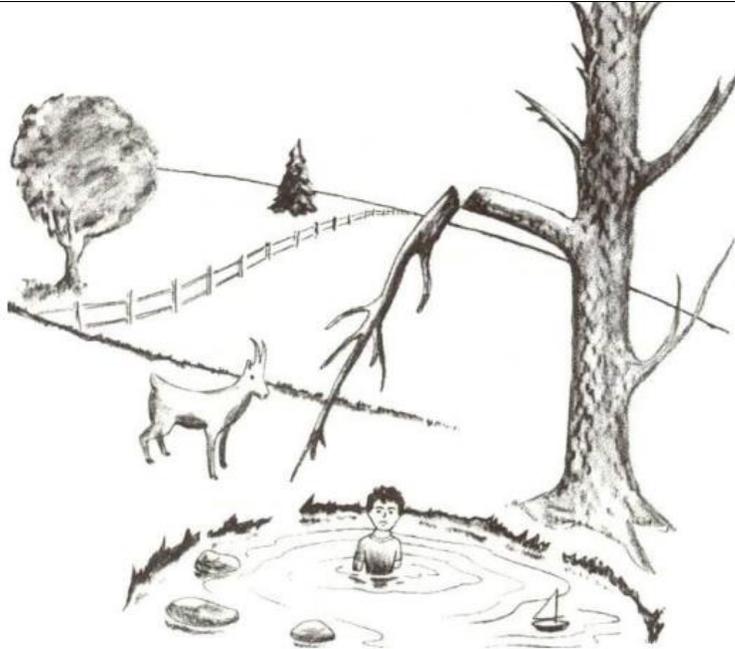
Show them the key and discuss again the difference between evidence and interpretation

**ENGAGE**

Call each of the images a test. Ask the students to say what they observe. Ask them to say how to fix the test. You should see if you can introduce the term variable and help them to realise that a fair test should examine one variable at a time.



<b>EXPLORE</b>	<b>Instructions</b>
<p>1 200 ml plastic cup (or plastic bottle with the top cut), 3 metal soda bottle caps, stick for measuring, paper for scoring, pencil, glue or tape, graph paper.</p>	<ol style="list-style-type: none"> <li>1. Each group is supplied with the materials listed</li> <li>2. You may develop a game for the students to compete on tossing the bottle cap into the cup. You may also let the students invent the game themselves. Together you and the students will develop an EXPERIMENT to determine who is better at the basket bottle cap game, boys or girls?</li> <li>3. Ensure they state a hypothesis eg. girls will be better at the toss than boys</li> <li>4. Play the game using multiple teams of girls and boys</li> <li>5. Collect data – possible data sets include table with number of goals scored for girls and boy teams. Plot of bar chart on graph paper.</li> <li>6. Discuss results</li> </ol>
<b>EXPLAIN</b>	
<p>Answer the following questions:</p> <ol style="list-style-type: none"> <li>1. What is the difference between observation and inference?</li> <li>2. How can you find out for sure what your observations mean?</li> <li>3. Write a poem about your task today</li> </ol>	
<b>ELABORATE</b>	Write I (Interpretation) or O (Observation) in relation to the picture



- 1. The boy is in the water
- 2. The weather is cold
- 3. The tree branch is broken
- 4. If the boy crawled out of the water, the goat would push him
- 5. The boy fell off the branch
- 6. The goat is standing by the pond
- 7. The branch will fall on the boy's head
- 8. The boy fell off the rocks
- 9. There is a sailboat in the water
- 10. The sailboat belongs to the boy
- 11. The goat will soon leave the pond
- 12. The tree by the pond has no leaves
- 13. There are three rocks in the pond
- 14. The tree by the pond is dead
- 15. If it rains, leaves will grow on the tree
- 16. The goat pushed the boy into the pond

**EVALUATE**

	Describe the learning experience. Say what you thought about the task and what you expected going in. How were those expectations met or impacted?	2
	Interpret the experience discussing what you found challenging. Discuss in depth any insight(s) obtained. Support your insight(s) with examples.	3
	Relate specifically what you have learnt from the experience. Make any possible connections to content previously learnt.	2
	Provide a detailed account of how what you have learnt will influence your work/professional/personal practices for the future.	3