Smelly Science

Respect our rivers

The rivers in South Africa are important and we need to take special care of them.

So little water!

Something for you to try:

Fill a teacup with water – this represents all the water on Earth. Now take out one teaspoon (5 mL) – these 50 drops represent all the water on land – the water remaining in the teacup represents the oceans. Now take out 1 drop of water from the teaspoon – this is the amount of freshwater available for use by all the people, animals and plants on Earth. The rest of the water in the teaspoon is unavailable because it is locked up in the ice-caps (38 drops) or underground (11 drops).

Water is precious – don’t waste it or pollute it!

Many of our rivers are becoming polluted

Make a model of a polluted river:

Work in a group of four or five learners.

You will need:

- A hose or bucket to provide a source of water;
- A small spade;
- Guttering or halved swimming pool hose;
- Basin or 2L plastic bottle for the dam;
- Sand, food colourants, lentils and other harmless substances that can be used as pollutants;
- Bottles, jars;
- Plastic bottle for bottling polluted water;
- Spoons; and
- Paper, pens and coloured pencils.

What to do:

1. Make a table showing pollutants that could be found in a river that flows through a city.
2. Think of safe, cheap, easily obtainable ingredients that could be used to represent the pollutants.
3. Decide on the amount of each pollutant you will add to your river. Give reasons for your choice.

Examples of pollutants

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>What you will use to represent the pollutant</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insecticides/pesticides</td>
<td>Powder paint</td>
<td>1 tablespoon</td>
</tr>
<tr>
<td>Heavy metals</td>
<td>Lentils, small stones</td>
<td>3 tablespoons</td>
</tr>
<tr>
<td>Chemicals</td>
<td>Food colouring</td>
<td>1 tablespoon</td>
</tr>
<tr>
<td>Litter</td>
<td>Sweet papers</td>
<td>1 handful</td>
</tr>
<tr>
<td>Sewage</td>
<td>Coffee</td>
<td>2 tablespoons</td>
</tr>
</tbody>
</table>

Pollutants added along the river

Model of a polluted river

4. Design and build a short river in the school ground. You will need a source of water and a dam at the end.

5. Pour the water into the model. As the water flows down the river, the pollutants can be added.
6. Collect the polluted water in a bottle.
7. Write a label for the bottle of polluted water. The label must show what is in the water. Keep this bottle in your classroom to remind you that we need to care for our rivers.
8. Why don’t you test out different methods to clean this water?

LO2: CONSTRUCTING SCIENCE KNOWLEDGE

The learner will know and be able to interpret and apply scientific, technological and environmental knowledge.