At level 3, students are working towards level 4 standards
At level 4, students are working towards level 5 standards

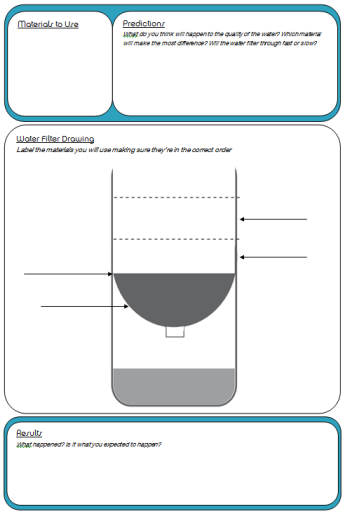
Water Treatment Experiment

Materials:

- *An empty one-litre plastic bottle*
- *Box cutter or scissors*
- *Coffee Filter*
- *Sand*
- *Rocks*
- *Activated carbon*
- *Plastic Cups*
- *Food colouring/glitter/soil*

Method:

1. *Using Scissors or a box cutter, cut the top off a one-litre soft drink bottle. Make the cut about 3/4 of the way up from the base.*
2. *Place the top half of the bottle upside-down into the bottom half. The bottom half will catch the filtered water and the top half will serve as a funnel and contain the filtration materials*
3. *Place a coffee filter into the funnel portion of your filter*
4. *Start layering your other materials – look at 'Filter Anatomy' to see the order!*
5. *Now your filter is made it's time to test it! In a plastic cup add glitter, food colouring and a little bit of soil*
6. *Write down your predictions on the worksheet provided*
7. *Pour the 'dirty water' through your filter and use a stop watch to time how long it takes to finish filtering!*



This experiment may be done in groups or as a whole class, depending on resources available to the school. Ensure student's label their diagram prior to construction of their filter. Discuss what each layer does and what order gives the best results and why.

Students are then required to make predictions of the results, and after the experiment are complete comment on the results and compare them to their predictions.
Results may be presented as written or, if using food dye in tampered water, poured onto a piece of paper, then dried and examined for any discoloration.

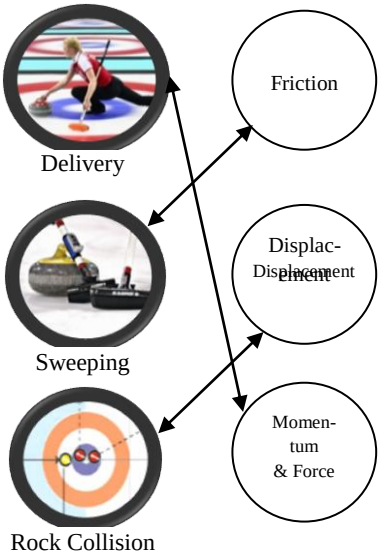
Domain	Content Strand	Proficiency Strand	Key Elements of Standards
Science	**Science as a human endeavour:** Nature and development of science Use and influence of science	Literacy Numeracy Personal and Social capability	**Level 3/4:** Science involved making predictions and describing patterns and relationships, as well as assisting people to understand the effects of their actions
	Science Inquiry Skill: Questioning and predicting	Literacy Personal and Social capability	**Level 3/4:** Students, with guidance are able to predict outcomes based on prior outcomes/discussion.
	Science Inquiry Skill: Planning and conducting	Literacy Numeracy Personal and Social capability	**Level 3/4:** Students suggest ways to plan and conduct investigations, including how to use equipment safely, and how to record observations.
	Science Inquiry Skill: Processing and analysing data and information	Literacy Numeracy Critical and creative thinking	**Level 3/4:** Compare results with predictions, suggesting possible reasons for findings.

	Science Inquiry Skill: Evaluating Communicating	Literacy Numeracy Critical and creative thinking	**Level 3/4:** Students reflect on the effectiveness of the experiment and communicate their findings in a number of ways, giving physical representations and simple reports.

Forces in Curling

Name 3 ways friction plays a part in the sport of curling

Answers man include, though are not limited to:
Gripping the rock,
friction between the ice and rock, slowing the rock down
Friction between the brooms and ice
Gripping the brooms



What is a physical reaction to friction?

Heat as particles become more charged and vibrate faster

How might this reaction affect the ice when teams are sweeping during a curling game?

Sweeping heats up the ice, thus melting a thin layer on top of the ice allowing the rock to slide further. It also helps to reduce the effect of the pebbled ice surface, creating less friction under the stone.

Domain	Content Strand	Proficiency Strand	Key Elements of Standards
Science	**Science Understanding:** Physical Sciences	Literacy Critical and creative thinking	**Level 3:** Heat can be produced in many ways and can move from one object to another. **Level 4:** Forces can be exerted by one object to another through direct contact or from a distance.