Unit at a glance • Enough Water fit for Drinking

PART 1: WHAT'S THE PROBLEM?

Activity No	Activity Name	Phase	Activity Type	Activity description
1.1	The world's fresh water supply	Engage	Digital Interactive	A variety of stimuli is presented to engage students with the topic. Ideas in response to the stimuli are recorded in ***Notebooks***.
1.2	A precious resource	Engage	Digital Interactive	
1.3	How can everyone access clean drinking water?	Engage	Digital Interactive	A **diagnostic assessment** task to find out what students already know about filtration.
1.4	**Check your use**	**Engage**	Digital Interactive	**Extension activity – using an online calculator, students investigate how much water they use at home. Students show their knowledge and opinions in a diagnostic assessment task about recycling water for drinking.**

Optional

PART 2: WHAT ARE SOME PARTICULAR PROPERTIES OF WATER?

Activity No	Activity Name	Phase	Activity Type	Activity description
2.1	Water droplets	Engage & Explore	Hands-on inquiry	Students experience and observe the behaviour of water compared to oil.
2.2	Modelling molecules	Explore & Explain	Hands-on inquiry	Students construct a plasticine model of the water molecule.
2.3	Get to know the water molecule	Explore & Explain	Digital interactive	A digital model of the water molecule is explored.

2.4	Sticky water	Explore & Explain	Hands-on inquiry	Students make predictions about cohesion and design a fair test to investigate it using a coin and a dropper.
2.5	How does water interact when it encounters paper?	Explore & Explain	Hands-on inquiry	Students design and conduct a fair test to explore adhesion between water and paper.
2.6	Different types of mixtures	Explore & Explain	Hands-on inquiry	An investigation of solutions through observation of the Tyndall effect in a variety of mixtures.
2.7	How will you know a solution when you see one?	Explain & Elaborate	Classroom activity (literacy)	Students are introduced to the scientific terms related to mixtures through a literacy activity.
2.8	**What happens when a substance dissolves?**	Explore, Explain & Evaluate	**Digital interactive**	**Extension activity—a digital molecular model that explores how and why some substances dissolve in water. A formative assessment task on dissolving is included.**
2.9	What's your learning?	Evaluate	Classroom activity	A **formative assessment** task where students construct a ***Concept Map*** to demonstrate and seek feedback on what they have learned so far about the properties of water.

Optional

PART 3: WHERE DOES THE WATER WE USE COME FROM AND WHERE DOES IT GO?

Activity No	Activity Name	Phase	Activity Type	Activity description
3.1	What is the water cycle?	Explore & Explain	Digital interactive & Classroom activity (literacy)	A digital representation of the water cycle to prompt students to share ideas about rainfall and contamination of water storage.
3.2	What's common to the natural water cycle and the urban water cycle?	Explain & Elaborate	Digital interactive	Students explore a digital comparison of the natural water cycle vs. the urban water cycle.
3.3	How is water treated?	Explore & Explain	Digital interactive	A digital representation of a flow chart showing how water is treated for use.

3.4	**Is all drinking water the same?**	**Elaborate**	**Digital interactive**	**Extension activity—students compare and contrast the characteristics of the water available in Mpwelarre and Katoomba.**	**Optional**
3.5	Meet an aquatic ecologist working with traditional owners	Elaborate	Digital interactive	Students watch a short video showing how a scientist works with Traditional Owners to monitor the health of local waterways.	

PART 4: WHAT'S IN YOUR WATER?

Activity No	Activity Name	Phase	Activity Type	Activity description	
4.1	Looks good, smells good, is good for you?	Explain	Classroom activity (literacy)	An exploration of the Australian Drinking Water Guidelines.	Optional
4.2	Testing the water quality	Explore & Explain	Hands-on inquiry	Students test water samples for pH and the presence of copper and nitrates.	
4.3	How can you clean up dirty water?	Explain	Classroom activity (literacy)	Students summarise the steps involved in water treatment in this literacy-based activity.	
4.4	Treating water using coagulation, sedimentation and filtration	Elaborate	Hands-on inquiry	Students design and construct a filter to 'clean up' dirty water.	
4.5	What goes through filter paper?	Elaborate	Hands-on inquiry	An investigation of different mixtures and whether they will pass through filter paper.	
4.6	**Membrane filtration**	**Explore & Explain**	**Hands-on inquiry**	**Extension activity—students work in teams to investigate how membranes filter solutions using dialysis tubing.**	**Optional**
4.7	How is membrane filtration used in water treatment?	Elaborate	Classroom activity (literacy)	A closer look at membrane filtration via a literacy task.	
4.8	Can we turn seawater into drinking water?	Explore and Explain	Hands-on inquiry	Students construct a solar still to produce freshwater from seawater.	

PART 5: HOW CAN SCIENCE HELP US MAKE EVIDENCE-BASED DECISIONS?

Activity No	Activity Name	Phase	Activity Type	Activity description
5.1	What does the media say? Why does it matter?	Elaborate	Classroom activity (literacy)	A media article about water recycling prompts student discussion about claims and evidence about the process.
5.2	How is recycled water made safe?	Explain	Digital interactive	A video exploring the social issues and science surrounding recycling water for drinking is viewed by students.
5.3	Vox pop	Elaborate	Digital interactive & Classroom activity	Students engage with a digital resource showing different opinions about recycling. Students practise making responses using evidence to support claims.
5.4	How are some technologies more efficient than others?	Elaborate	Digital interactive & Classroom activity	The advantages and disadvantages of different water sources are explored by listening to researchers. Students compare and contrast the different sources.

PART 6: HOW MIGHT YOU DEFEND YOUR POSITION?

Activity No	Activity Name	Phase	Activity Type	Activity description
6.1	Should we be recycling water for drinking?	Evaluate	Classroom activity	A **summative assessment** task where students develop claims and evidence about whether or not we should be using recycled water. Work is presented for assessment.
6.2	**Sample test**	Evaluate	**Classroom activity**	**Optional activity—a formal test that may be used for summative assessment of the concepts covered in the unit.**

Optional