

Lesson 1 BAD BACTERIA - INTRODUCTION

	CONTENT	RESOURCES
Introduction	<p>DISCUSS: When have you been sick? How did you feel? What do you already know about things we can do to stay healthy?</p> <p>READ or VIEW the story of Melrose Mare (NB - this story is designed for younger students but is a good starting point for discussion on this subject)</p>	<p>Melrose Mare read aloud https://youtu.be/wjsX7IVMJ-E</p>
Main	<p>QUESTION: What should we do to help fight bad bacteria making us sick?</p> <ol style="list-style-type: none"> 1. <i>Wash our hands before we eat and after going to the toilet.</i> 2. <i>Cover our coughs and sneezes.</i> 3. <i>Do not share anything that has been in our mouth.</i> <p>QUESTION: What happens when we feel sick? <i>e.g. sneeze, cough, sore tummy, headache...</i></p> <p>QUESTION: Why do we get sick? <i>e.g. We can get bad bugs, called bacteria, in our mouths which make us feel sick; we catch bacteria from other people when they sneeze or cough, or when we share food, drinks or other things that we put in our mouths; we forget to wash our hands after going to the toilet.</i></p> <p>DEMONSTRATE: Using flour or glitter, show students how sneezing/coughing releases saliva/mucus into the air. Pretend to sneeze and cough and spray the powder up into the air as you do so. Explain that our saliva/mucus can contain bad bacteria when we are sick and, if other people come into contact with that bad bacteria, they can get sick too. Bacteria can travel for metres if our coughs and sneezes are not covered.</p> <p>QUESTION: What are you supposed to do when you sneeze or cough? <i>Sneeze/cough into elbow NOT hands.</i> What will happen if we sneeze/cough into our hands? <i>We can still pass bad bacteria by touching objects if our hand has not been immediately washed.</i></p> <p>DEMONSTRATE: Put a small amount of flour or glitter into student's hands, to represent the bacteria from a cough or sneeze. Encourage the students to open a door/drawer, pick up a pencil, shake hands...Then students can rub their nose or scratch near their lips. <i>This is how bacteria travels.</i></p>	<p>Flour or Glitter</p>
Review & Conclusions	<p>DISCUSS: What have we learnt about how we can keep ourselves healthy?</p>	
Differentiation	<p>* The story supplied may be too young for your students, if you know an alternative, that has the same message, this could be substituted.</p> <p>* This is designed to be an introduction lesson to the topic, questioning and discussion should be altered to the student's ability.</p>	

Lesson 2 GINGERBREAD MAN

	CONTENT	RESOURCES
Introduction	<p>DISCUSS: How do we feel when we are well and how do we feel when we are sick? Talk about how all different parts of our body feel.</p> <p>READ or VIEW The Gingerbread Man story and discuss different body parts.</p>	<p>The Gingerbread Man – book or https://www.youtube.com/watch?v=YoQyyB5xvLk</p> <p><i>Please note – the story in this instance, is to introduce the character for the health lesson BUT this story raises other topics for discussion on values etc You may chose to read the story first as a separate lesson so that you can explore the values of the story.</i></p>
Main	<p>Encourage students to think about what they can do when they are feeling healthy. Improvise the song "If you are happy and you know it..." to "If you are healthy and you know it..." e.g. <i>clap your hands, jump around, wave your arms...</i></p> <p>DISCUSS how students feel when they are really sick. Talk about how it can affect all parts of our body and encourage discussion about the different symptoms that can be felt in different body parts. <i>E.g. head hurts, tummy pains, muscles ache, hands/feet cold...</i> Students could improvise the song again to "If you are sick and you know it..." and incorporate their answers into the song and act out different symptoms.</p> <p>Show 'The Gingerbread Man' worksheet and instruct students to label the body parts and write about the symptoms that they present with when they are feeling unwell. They could highlight the parts of the body that they remember hurt when they have felt sick, from experience.</p>	<p>AYF Gingerbread Man worksheet</p>

Review & Conclusions	DISCUSS What should you do if you feel any of these symptoms? <i>Rest, stay home from school, let an adult know...</i>	
Differentiation	* Students could bake Gingerbread Men or make with clay and label the body parts and discuss symptoms as they decorate. * Students could write about a time when they felt sick and describe in-depth about how different parts of their body felt around the outline of the Gingerbread Man.	

Lesson 3 MYSTERY BAG – SAFE/UNSAFE ITEMS

	CONTENT	RESOURCES
Introduction	EXPLAIN that one way to not catch bad bacteria is to make sure that we do not share anything that has been in our mouth. <i>Bacteria can live in the mucus at the back of our throat and nose.</i> Review the common phrase 'Sharing is Caring' and replace with what we say at the Amanda Young Foundation, ' Be Aware, Don't Share! '	
Main	<p>HIDE several common household items in a Mystery Bag or Box for students to take turns pulling out and showing to the class. The students can RESPOND with either 'Share' or 'Don't Share'. Toys, books, stationery are fine to share, for example, but anything that is put in the mouth is not okay to share.</p> <p>Present the worksheet to the class and EXPLAIN that students will need to colour items that are safe to share in blue and items that are not safe to share in red.</p> <p>COLLECT the worksheet to ensure understanding.</p>	<p>Mystery Bag or Box</p> <p>Items to hide that are deemed safe/unsafe to share. <i>(SAFE – toy, book, art shirt, necklace mobile phone, glue stick... UNSAFE – cutlery, recorder, lip balm, drink bottle, tooth brush, straw, mouth guard...)</i></p> <p>Safe/Unsafe worksheet</p>
Review & Conclusions	REINFORCE that it is kind to share our equipment with other people, but not things that we have had in our mouth.	
Differentiation	* Students could draw or write their own items into two columns – Safe to share/Unsafe to share.	

Lesson 4 GOLDILOCKS AND THE THREE BEARS

	CONTENT	RESOURCES
Introduction	REVIEW the familiar story of 'Goldilocks and the Three Bears' and RETELL the events. This could be performed in small groups as a role play.	Goldilocks and the Three Bears https://www.youtube.com/watch?v=qOJ_A5tgBKM
Main	<p>DISCUSS: Should Goldilocks have entered the Bear's home? How do you think this made the bears feel? Why did she enter the home? Would you? Was it open? What were the consequences of her entering the bear's home?</p> <p><i>(CONSIDER break and enter, private property, security, broken furniture, shared cutlery - review 'Be Aware, Don't share!'...)</i></p> <p>REVIEW the concept of point of view. <i>Did Goldilocks and the Bears have different feelings about the incident? What was Goldilocks' motivation for entering the house? Why did she fall asleep? What could have gone wrong?</i> Everyone is entitled to their own opinion.</p> <p>WRITE a report or prepare an ORAL PRESENTATION, using persuasive language, from the point of view of either Goldilocks or one of the bears either accusing or defending Goldilocks' actions, using evidence from the story.</p>	
Review & Conclusions	PRESENT and DISCUSS how perspective can change depending on the situation, experience and point of view. Are there any circumstances in which Goldilocks was in the right?	
Differentiation	<p>* Younger students could work together in small groups and present their opinion as a group, orally.</p> <p>* Older students could set up a simple debate scenario and present as defenders or accusers to a 'Judge' who could determine an appropriate punishment.</p>	

Lesson 5 BACTERIA/MOULD GROWTH ON BREAD EXPERIMENT

	CONTENT	RESOURCES
Introduction	<p>Have students LOOK at their hands. EXPLAIN that they might be able to see dirt, but they can't see invisible-to-the-eye bacteria that accumulates on their hands over the course of the day.</p> <p>DISCUSS the importance of hand washing for the prevention of spreading bad bacteria EXPLAIN that the science experiment being conducted will prove or disprove this theory.</p>	
Main	<p>Place 5 pieces of bread into labelled, separate zip lock bags.</p> <ol style="list-style-type: none"> 1. Using tongs, place one slice of bread directly from the bread bag into a zip lock bag untouched and seal. This is the control. 2. Students with washed hands handle the next slice and place into another zip lock bag and seal. 3. Students that have used hand sanitiser to clean their hands handle the next slice and place into another zip lock bag and seal. 4. Pass one slice of bread around students that have returned from play, without washing their hands, place into another zip lock bag and seal. 5. The final slice is to be rubbed on the classroom iPads before being placed in a separate zip lock bag. <p>Keep all the sealed bags in a cool, dry place.</p> <p>PREDICT what will happen!!</p> <p>OBSERVE the bread daily and RECORD observations, but do not take the bread out of the bags. <i>In a few days, mould will start to appear.</i></p> <p>QUESTION students: What bread gets mouldy first? Which one grows the most mould? Which grows the least? When mould starts to appear students can MEASURE with a ruler and record observations. <i>Students could draw a picture of the bread each day or keep a photo diary by taking photos of the bread each day to watch the changes over time.</i></p>	<p>Bread</p> <p>Zip lock bags</p> <p>Soap/hand sanitiser</p> <p>Classroom computers</p>
Review & Conclusions	DISCUSS the results of the experiment to confirm that handwashing DOES prevent the spread of bacteria and is an important defence in keeping people healthy.	
Differentiation	<p>* Method of recording the results of the experiment could be varied according to the student's ability.</p> <p>* Older students could write up the experiment formally, using hypothesis, prediction, materials, procedure, results and conclusion.</p>	

Lesson6 MAP YOUR HAND

	CONTENT	RESOURCES
Introduction	EXPLAIN that our fingers and hands have a special design that make us unique.	Fingerprints photos or stamped from staff members
Main	<p>SHOW some examples of different fingerprints and pass them around the class to view the natural ridges, valleys and patterns.</p> <p>DISCUSS how hands are well-designed to store bacteria in the crevices. <i>There are some bacteria that occur naturally and do not cause harm. Other bacteria is collected from items that are touched or respiratory secretions.</i></p> <p>Students can then closely OBSERVE their own and their peer's hands, using magnifying glasses. Encourage discussion using descriptive language regarding the patterns that they can see. Find the similarities and differences between students.</p> <p>Students TRACE their hand onto a piece of paper and DRAW the lines that they can see, using a magnifying glass, to create a 'map' of their hand.</p> <p><i>(This 'hand map' can be added to the art piece that is explained in the following lesson plan.)</i></p>	<p>Bacteria on hand images online</p> <p>Paper</p> <p>Pencils</p> <p>Magnifying glasses</p>
Review & Conclusions	RECALL how everyone has unique prints, but all hands will 'store' bacteria and therefore we need to wash our hands before eating and after playing and going to the toilet.	
Differentiation	* This activity could be made simpler by stamping fingers/hands rather than drawing.	

Lesson 7 COLOUR MIXING HANDWASH

	CONTENT	RESOURCES
<p>Introduction</p>	<p>DISCUSS with students what they regularly touch with their hands (<i>e.g. own bodies, other people, food, door handles, toys, pencils, furniture...</i>)</p> <p>QUESTION: What might we find on the things that we touch that could make us sick, especially if somebody hasn't been careful to sneeze or cough into their elbow but has used their hand instead? <i>bad bacteria, germs.</i></p> <p>EXPLAIN that we need to correctly wash our hands regularly to make sure that we kill any bad bacteria that we might have picked up, especially before eating, after eating, after going to the toilet and after playing.</p>	
<p>Main</p>	<p>INTRODUCE correct handwashing technique by VIEWING the World Health Organisation's YouTube link.</p> <p>REVIEW the important steps from the video to correct handwashing.</p> <ol style="list-style-type: none"> 1. Wet hands with water. 2. Apply enough soap to cover all hand surfaces. 3. Right palm over left dorsum with interlaced fingers and vice versa. 4. Palm to palm with fingers interlaced. 5. Rotational rubbing of left thumb clasped in right palm and vice versa. 6. Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa. 7. Rinse completely. 8. Dry thoroughly with a single use towel. <p>VIEW the video link a second time and practise handwashing whilst watching.</p> <p>EXPLAIN that a correct handwash will wash all of the hands clean. <i>This art activity will ensure that students have learnt how to completely clean their hands using this technique, whilst also reviewing their knowledge of primary and secondary colours.</i></p> <p>QUESTION: What are the primary colours? <i>Red, yellow, blue.</i> What happens when we mix these colours? What are the secondary colours? <i>Orange, green, purple</i></p>	<p>WHO handwashing https://youtu.be/3PmVJQUCm4E</p> <p>Mix it Up by Herve Tullet https://youtu.be/WLxFNtNZa4E</p> <p>Rubber gloves</p> <p>Red, yellow and blue paints</p>

	<p>(OPTIONAL: Read the book 'Mix it Up' by Herve Tullet to extend the understanding of colour mixing)</p> <p>DISTRIBUTE rubber gloves and apply a 'small amount of different primary colour of paint to the palm of each hand.</p> <p>Students follow the correct procedure of handwashing ensuring that they have adequately 'cleaned' all of their hands. <i>Students should now have two gloved hands completely covered in a secondary colour.</i></p> <p>This could be displayed as 2x2 Wall Art:</p> <table border="1" data-bbox="580 723 925 1019"> <tr> <td data-bbox="580 723 746 869">Left Hand Primary colour (e.g. red)</td> <td data-bbox="746 723 925 869">Right Hand Primary colour (e.g. yellow)</td> </tr> <tr> <td data-bbox="580 869 746 1019">Left/Right Hand 'Hand Map' -previous task</td> <td data-bbox="746 869 925 1019">Left/Right Hand Secondary colour (e.g. orange)</td> </tr> </table>	Left Hand Primary colour (e.g. red)	Right Hand Primary colour (e.g. yellow)	Left/Right Hand 'Hand Map' -previous task	Left/Right Hand Secondary colour (e.g. orange)	
Left Hand Primary colour (e.g. red)	Right Hand Primary colour (e.g. yellow)					
Left/Right Hand 'Hand Map' -previous task	Left/Right Hand Secondary colour (e.g. orange)					
Review & Conclusions	DISCUSS the importance of correct handwashing and practice the WHO procedure.					
Differentiation	* Colour mixing proficiency to be pitched to student's ability.					

Lesson 8 20 SECOND HANDWASHING SONGS

	CONTENT	RESOURCES
Introduction	REVIEW correct handwashing technique and EMPHASISE that a good hand wash takes about 20 seconds.	
Main	<p>REVIEW units of time (hours, minutes, seconds)</p> <ul style="list-style-type: none"> * 24 hours in a day. * 60 minutes in an hour. * 60 seconds in a minute. <p><i>A good handwash takes almost half a minute.</i></p> <p>SHOW the hour, minute and second hands on an analogue clock. WATCH the second hand for 20 seconds a number of times. ESTIMATE how long 20 seconds is by putting hand up after the teacher says 'Go!'</p> <p><i>Ensure students can use a stopwatch. In small groups, students are to work together to time simple songs/nursery rhymes to find which ones can be used to effectively time a thorough handwash. Some good examples include Happy Birthday, Twinkle Twinkle, Row Row Your Boat.</i></p> <p>Students can PERFORM their songs with their peers timing them.</p> <p>VIEW the Wash Your Hands with Baby Shark YouTube link and discuss how common songs can be improvised and altered to create a new catchy song that can be used when they are washing their hands. <i>Another example is: (to the tune of Row Row Row Your Boat..</i></p> <p style="text-align: center;"><i>Wash wash wash your hands Clean off the germs Rub rub rub away Germs cannot stay...)</i></p> <p>Encourage creativity and present to the class.</p>	<p>Analogue clock with a second hand</p> <p>Stopwatches</p> <p>Simple songs. Nursery rhymes</p> <p>Wash Your Hands with Baby Shark https://youtu.be/L89nN03pBzI</p>
Review & Conclusions	REVIEW student's understanding of 20 seconds by a game where they sit in their seats and have to stand when they believe that 20 seconds has passed, after the teacher has said 'Go!'	
Differentiation	<ul style="list-style-type: none"> * Younger students may need more assistance with the stopwatches and could complete the song timing as a whole class activity. * Older students could be further encouraged with the song improvisations. 	

Lesson 9 PERSUASIVE LETTER WRITING

	CONTENT	RESOURCES
Introduction	DISCUSS that there are some areas and activities that would be considered high-risk for transmission of bacteria. Where would they be? <i>Shared food areas, bathrooms, kitchens...</i> What can we do to avoid transmission? <i>Washing hands, hand sanitiser, social distancing...</i>	
Main	<p>EXPLAIN that students are going to be walking around the school to observe high-risk areas for bacteria transmission and identify any issues.</p> <p>Students take a clipboard with a worksheet with three columns titled Problem/Hygiene Principle/Solution and work in small groups to IDENTIFY and write down issues. <i>For example: no soap in toilets/transfer of germs/source soap, provide hand sanitiser.</i></p> <p>SHARE findings with the class.</p> <p>DISCUSS Who could we present these issues to in order to solve them? <i>Principal</i></p> <p>REVIEW formal letter writing and FORMULATE a letter that can be sent to the Principal stating the problems and suggesting how they can be solved.</p>	worksheet
Review & Conclusions	DISCUSS What we can do ourselves to improve the health of our environment? FOLLOW UP with the Principal to see if suggestions are carried out.	
Differentiation	* Younger students could work on one chosen problem and work together to formulate the letter as a whole class activity.	

Lesson10 HANDWASHING PROCEDURE POSTER

	CONTENT	RESOURCES
Introduction	REVIEW the flour activity from Lesson 1 and discuss how bad bacteria can travel.	
Main	<p>DEMONSTRATE this concept further by 'infecting' an apple. Find an apple that has bruises or is starting to rot. Insert a toothpick into the rotten part and insert that toothpick into a healthy apple. Put aside for 24 hours. <i>The 'healthy' apple is now contaminated also where the toothpick was inserted.</i></p> <p>DISCUSS/REVIEW the best ways to stay healthy and reduce the transfer of bacteria:</p> <ol style="list-style-type: none"> 1. Washing hands regularly. 2. Cover coughs and sneezes. 3. Do not share anything that has been in our mouth. 4. Stay home when you are unwell. <p>VIEW/REVIEW World Health Organisation's Handwashing YouTube link and discuss the steps required to wash hands thoroughly.</p> <p>DISCUSS how to create a Procedure Poster on Handwashing:</p> <ol style="list-style-type: none"> 1. Identify the main objective (<i>How to Wash Hands</i>). 2. Identify audience (<i>School students/staff</i>). 3. Keep instructions short, simple and to the point. 4. Use bullet points/numbers and drawings/photos to accompany written instructions. <p>DRAW/CREATE a poster to display around the school in high-risk areas outlining correct handwashing technique.</p>	<p>Apples (one bruised/rotten, one healthy)</p> <p>Toothpicks</p> <p>WHO handwashing https://youtu.be/3PmVJQUCm4E</p>
Review & Conclusions	DISPLAY the posters around the school and make people aware that they are there.	
Differentiation	<p>* Using photos in the procedure would make this a simpler task.</p> <p>* More capable students could be extended with creating a procedure using online graphics software.</p>	

Lesson 11 3D BACTERIA MODELS

	CONTENT	RESOURCES
Introduction	<p>DISCUSS What is bacteria? <i>Tiny little organisms that are everywhere around us – microorganisms that come in different shapes (sphere – cocci, rod – bacilli, spiral – spirilla)</i></p> <p>VIEW online images of different bacteria.</p>	Online images of bacteria
Main	<p>DISCUSS that there are as many good bacteria cells in a human as human cells. They do important jobs like breaking down foods and helping to fight off bad infections. Good bacteria outside of the body assist with fermentation (making yoghurt) and creating antibiotics.</p> <p>DISCUSS What is Bad Bacteria? <i>Harmful bacteria are called pathogens and cause disease. Some examples include food poisoning, whooping cough, meningococcal.</i></p> <p>EXPLAIN that students are going to choose a bacterium to create using clay and collage materials. Use online images to assist with representing the shape, colour and features of the chosen bacteria.</p> <p>LABEL the model with the name of the bacteria and its purpose. Is it useful or harmful?</p>	<p>Clay</p> <p>Collage materials</p>
Review & Conclusions	DISCUSS how not all bacteria is harmful and many are essential and very helpful.	
Differentiation	<p>* Older students could include a report about their chosen bacteria.</p> <p>* A simple yoghurt could be made to reinforce how helpful bacteria can be!</p>	Simple yoghurt recipe link

Lesson 12 BIG NUMBERS

	CONTENT	RESOURCES
Introduction	DISCUSS how bacteria are microscopic and multiply very fast. There are approximately 100 trillion bacterial cells in an adult. That is 100 000 000 000 000. The bigger the number, the more zeros at the end.	
Main	<p>Begin the lesson by having students SKIP COUNTING in 1s to 10. Then, SKIP COUNTING in 10s to 100. Use MAB blocks to reinforce understanding the 10 blocks make a rod (10) and 10 rods make a flat (100).</p> <p>COMPLETE worksheet showing 100 bad bugs. Students draw 10 bad bugs in each petri dish to total 100.</p> <p>If students have a very clear understanding of this, larger numbers could be introduced.</p> <p>Show a container of '100s and 1000s' and have students ESTIMATE how many the container holds? FOCUS on the numbers 100 and 1000 and show that more zeros at the end equal higher numbers. How many 'sprinkles' are in the container? <i>The actual answer will be a very large number – like trying to count bacteria!</i></p> <p>DISTRIBUTE the container of '100s and 1000s' amongst the class, using a spoon and give students a plate to count on. Students attempt to count the '100's and 1000s' – encourage students to portion them into 10s and 100s to accurately count them and then, skip count to achieve a result.</p>	<p>Bad Bacteria worksheet</p> <p>100's and 1000's (Sprinkles)</p> <p>Small spoons</p> <p>Small plates</p> <p>MAB blocks</p>
Review & Conclusions	QUESTION: Can it be done? How many '100s and 1000s' are in a container? Are there more than 1000/10 000/100 000 000? How close was your estimate?	
Differentiation	* This could be completed over a period of time with older students keeping a tally as they count to get a more accurate result. They could put a marble in a jar for every 100 counted then skip count in 100's/1000s to get the answer.	