

Building Healthy Immunity

Type: (primary/intermediate): both

Area of Focus: (science, social studies, arts education, physical and health education)

Big Idea(s): How to create a healthy immune system to help fight off germs.

Aim: Students will be able to: (1) Know which foods support our immune system, and (2) which foods can suppress it.

What students will KNOW <i>(Concepts & content)</i> <i>Vocab, Basic barebones themes</i>	What students will UNDERSTAND <i>(Link to Big Idea)</i>	What students will DO <i>(Core and curricular competencies)</i> <i>Tasks</i>
<p>Students will know the following concepts and content</p> <p>Primary:</p> <p>Immune System</p> <ul style="list-style-type: none"> - Role in keeping us healthy - Foods that help - Foods that weaken <p>Germs</p> <ul style="list-style-type: none"> - How we get sick <p>How to stay healthy</p> <ul style="list-style-type: none"> - Vitamin C - Warming Foods - Foods that fight germs <p>Intermediates:</p> <p>Immune System</p> <ul style="list-style-type: none"> - White Blood Cells - Neutrophiles <p>Bacteria and Viruses</p> <ul style="list-style-type: none"> - Difference - Beneficial Bacteria - Antibiotics <p>How to stay healthy</p> <ul style="list-style-type: none"> - Vitamin C and D - Warming Foods - Foods that fight germs - Exercise 	<p>Students will understand</p> <p>Foods and Activities which strengthen our Immune System or weaken it.</p>	<p>Students will able to</p> <p>Review Foods and Activities to see which ones help or weaken our immunity.</p> <p>Describe some of the key nutrients that help build health immunity</p> <p>Understand the differences between processed foods and healthy foods and how they affect our immunity.</p> <p>Make and taste an immune boosting recipe.</p>

Materials & Technology

Students will use the following materials, tools, equipment

Ginger Root
Lemon (or juice)
Honey
Sparkling Water (not Soda Water)
Rosemary or Oregano

Rasp (fine grater)
Measuring spoons and cups
Lemon Juicer (optional)
250 ml mason jar, with lid
1 litre mason jar, with lid
Cups for serving

Ginger Ale Recipe:

- 2 tbsp ginger juice
- 1 tbsp lemon juice
- 3 tbsp honey
- 3 cups sparkling water

Finely grate ginger with rasp
Squeeze grated ginger in hands to express juice into the small mason jar. Discard pulp
Add lemon juice and honey
Close jar and shake until syrup is well mixed together
Pour syrup into the large mason jar
Slowly add sparkling water

Optional:
If using Rosemary or Oregano, make a tea with the herbs before and let cool.
Measure ¼ cup of the tea into the syrup before mixing.

Pre-Class Preparation

The teacher will need to make the following preparations prior to class(es)

Gather materials for recipe
Print Healthy Immunity images.
Print Colouring Immunity pages for primary (optional)
Make herbal tea from Rosemary or Oregano (Optional)

- 2-3 large sprigs of herb with 500ml of boiling water.
- Cool to room temperature.

Instructional Model (5E)

Constructivism model as instructional design

Engage: *(interest piqued, prior knowledge assessed)*

[An "engage" activity that make connections between past and present learning experiences, and anticipate activities and focus students' thinking on the learning outcomes of current activities. Students should become mentally engaged in the concept, process, or skill to be learned.]

Primary:

"How many of you have been sick so far this year?"

"How do you feel when you get sick?"

"What makes us sick?" (Answer: Germs)

"Why do we feel sick?" (Answer: Immune System fighting off germs)

Intermediate:

"What makes us sick" (Answer: Bacteria or Viruses)

"Why do we feel sick?" (Answer: Immune System fighting off germs)

"How do we get better?" (Answer: White Blood Cells and Neutrophils destroy germs)

"Who has ever needed to take Antibiotics?" (Explain: Antibiotics help destroy bacteria in our body)

"Do all germs need medicine?" (Answer: Viruses are not affected by Antibiotics. Antibiotics can hurt our beneficial bacteria which also help us fight against bad bacteria and viruses)

"Why do we get sick more in the Winter than in the Summer" (Answer: Vitamin D from the sunshine helps our immune system stay strong. Plenty of fresh fruit high in Vitamin C also. Spend more time indoors in Winter.)

Explore: *(inquiry-based activity) - experiment ideas, anything that is hands-on*

[They identify and develop concepts, processes, and skills. During this phase, students actively explore their environment or manipulate materials.]

Primary:

Explain: Some foods have things like Vitamin C help our immune system work better. Other foods warm our body and help our immune system fight harder. Some foods even fight the germs for us.

Explain: Some foods make our immune system weak and slow so it can't fight the germs as quickly or as strong. Sugar, Salt, Processed Fats make our immune system weak and slow)

Show pictures of different foods and have children guess which ones will help or hurt our immune system

- **Help:** Oranges and Citrus Fruits (Vitamin C), Honey (kills germs), Ginger (warms the body), Chicken Noodle Soup (Vitamins and Minerals which help the body recover, warms the body), Rosemary and Oregano (Warm the body, help to kill germs)
- **Hurt:** Soda Pop (sugar slows immunity, cool the body), Candy Bars (sugar), Chips (too much salt and unhealthy fats hurt immune system), Pizza (salt, processed fats)

Intermediates:

Explain: Some foods have things like Vitamin C help our immune system work better. Other foods warm our body and help our immune system fight harder. Some foods even fight the germs for us. Exercise help our immune system be strong so it can respond quickly. Sunshine contains Vitamin D which is necessary for healthy immune system.

Explain: Some foods make our immune system weak and slow so it can't fight the germs as quickly or as strong. Sugar, Salt, Processed Fats make our immune system weak and slow). Sitting around inside makes our immune system slow and doesn't provide Vitamin D.

Facilitator WORKSHEET

Show pictures of different foods and have children guess which ones will help or hurt our immune system and have them explain why.

- **Help:** Oranges and Citrus Fruits (Vitamin C), Honey (kills germs), Ginger (warms the body), Chicken Noodle Soup (Vitamins and Minerals which help the body recover, warms the body), Rosemary and Oregano (Warm the body, help to kill germs), Sunshine Activity (Vitamin D plus exercise), Yogurt (beneficial bacteria)
- **Hurt:** Soda Pop (sugar slows immunity, cool the body), Candy Bars (sugar), Chips (too much salt and unhealthy fats hurt immune system), Pizza (salt, processed fats), Video Games (sedentary, lack of sun)

Explain: *(students communicate what they have learned)*

[This section helps students explain the concepts they have been exploring. They have opportunities to verbalize their conceptual understanding or to demonstrate new skills or behaviors. This phase also provides opportunities for teachers to introduce formal terms, definitions, and explanations for concepts, processes, skills, or behaviors.]

Have students explain why our healthy ginger ale is good for the immune system (real ginger and lemon, honey) compared to store bought brands (sugar, ginger flavour, no vitamins).

Expand: *(transfer knowledge to other concepts) - teach at some time or build onto other plans*

[This section extends students' conceptual understanding and allows them to practice skills and behaviors. Through new experiences, the learners develop deeper and broader understanding of major concepts, obtain more information about areas of interest, and refine their skills.]

Primary: Have students colour the "Immune Building Foods" colouring page.

Intermediate: Research other foods are high in Vitamin C. Are there others fruits or vegetables that can be used instead of Citrus fruits? Are any of them grown locally? What would First Nations people be able to eat to get a lot of Vitamin C?

Evaluate: *(assess students understanding)*

[This section encourages learners to assess their understanding and abilities and lets teachers evaluate students' understanding of key concepts and skill development.]

Prior to tasting ginger ale, ask students to drink slowly and try to see if they notice any changes in their body after drinking it. Can they feel the warmth from the ginger? Can they taste the sourness of the lemons (provided by citric acid and Vitamin C - ascorbic acid).

Are any students feeling ill today? How did they feel after drinking it?

