

Activity: Sugar for the Brain

Themes: Health and Wellbeing

Glucose is the form of sugar that travels in the bloodstream in order to fuel the brain and muscles. Glucose is the only fuel normally used by brain cells. Because neurons cannot store glucose, they depend on the bloodstream to deliver a constant supply of this precious fuel. Blood sugar is obtained via the consumption of carbohydrates: from grains and legumes, fruits and vegetables.

Complex carbohydrates are like time-release capsules of sugar. Simple carbohydrates are more like an injection of sugar ([The Franklin Institute website - Carbohydrates Fuel Your Brain](#)).

While our liver breaks down complex carbohydrates slowly and releases them gradually to the brain, simple carbohydrates such as honey, sugar and syrup, provide a sudden high, but once this is gone, there is a big drop in brain energy. Our brains must have a constant supply of sugar from the blood to work correctly. People who are dependent on taking insulin for diabetes can develop low blood sugar and pass out if they take too much medicine or don't eat enough. People who are starving themselves can drop their blood sugar low enough to faint.

1. As a class, view the clip, *Collapse*, where Abigail collapses while performing a duet with Sammy. Discuss the information about glucose, provided above. Ask students to list:
 - a. 10 examples of complex carbohydrates
 - b. 10 examples of simple carbohydrates
 - c. 10 foods they last ate, and categorise them as to what food group they belong to
 - d. the carbohydrates they ate in the past 24 hours
2. As a class, discuss and categorise which carbohydrates are complex and simple. List the following sugars: sucrose, fructose, dextrose, glucose, lactose, maltose, sorbitol and artificial sweeteners and have students research what each is defined as.
3. Develop a class poster where students define each type of sugar and find an image that best represents it.

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NB: In case of food allergies, it is recommended to obtain prior permission from parents before conducting the activity below with students. Also, check whether your school has a safety policy around using food in the classroom.

4. Conduct a Taste Test Task: Ask several students to volunteer for a taste test. These students are asked to leave the room while a table of foods is set up. These foods should include sweets with sucrose, fructose and artificial sweeteners (*Weight Watchers* sweets or chewing gum), sweet buns (such as those found in *McDonalds*), little pieces of fruit. One by one, the blindfolded students are asked to comment on taste and “sugar hit factor” (between 1 and 5, 5 being the highest sugar hit), the type and amount of sugar in each item. The rest of the class should record the comments of the blindfolded students.
5. At the conclusion of the Taste Test, compare notes of the class and rank each food in order of the amount of sugar hit they gave. Discuss why these foods provide such a response. Compare processed sugar foods with naturally sugared foods. Ask students to rank the foods according to nutritional content.
6. Use **Student Activity Sheet E12.5: Sugar in Food** to guide the portion sizes, the amount of sugar in each item and to record comments.

Download

- Student Activity Sheet E12.5: Sugar in Food

Useful resources

- [Ausdance Factsheet 17, Eating disorders and dancers](#)
- [Ausdance Factsheet 19, Fuelling the dancer](#)
- [Ausdance Factsheet 12, Healthy bones for female dancers](#)
- [The Franklin Institute website - Carbohydrates Fuel Your Brain](#)
- [Centers for Disease Control and Prevention Nutrition Basics- Carbohydrates](#)
- [Food Insight – Background on Carbohydrates & Sugars](#)
- [Australian Institute of Sport Factsheet Carbohydrates](#)



NAME:

Student Activity Sheet:
Activity:





E12.5
Sugar for the
Brain

Episode 12:
Clip:

Pressure
Collapse

Sugar in Food

Research how much sugar is in the items of food listed in the table below. You can find this information on food packaging and by searching online. When writing the amount of sugar, make sure you record the weight and brand of food from which you sourced the nutritional information.

Food Type	Amounts of Sugar
	
	
	
	
	

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