



“Manure Milkshake” Smoothie Bowls – Educator Resource

Approximate Activity Time: 30 minutes

Background

This recipe is a relatively new one for FFDC. We introduced it 2 years ago and use it with students during our programs: “Life in a Handful of Soil”, “This is Our Planet: Understanding Global Warming”, and “Water System Wonders”. It has quickly turned into a crowd favourite and we are happy to share it with you! Enjoy.

How to use this resource

1. Have students complete the “Pre-Blending Questionnaire” and discuss your answers or read over them as a group and have an open discussion.
2. Follow the recipe to make your Manure Milkshake smoothie bowl base
3. Top your smoothie bowl with your favourite toppings. See the “Topping Suggestions” section for some inspiration.
4. Complete the “Manure Milkshake Brainstorm” section and guess why they are called “Manure Milkshakes”
5. Share the “Fun Manure Facts” to find out why FFDC’s calls these “Manure Milkshakes”. Maybe do this while you enjoy your smoothie bowl!
6. Check out our “Complimentary Resource” section.

Pre-Blending Questionnaire

1. Do you like smoothies? What is your favourite type of smoothie?

2. Why do you think we call these “Manure Milkshakes”?

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Manure Milkshake Smoothie Bowl Base

One recipe fills a large blender, roughly enough for 4 smoothie bowls.

Ingredients:

- 2 cups of frozen mixed berries
- 2 whole bananas
- ¼ cup of ice (if you do not have ice, add a few more frozen berries)
- ¾ cup of milk
- ¾ cup of orange juice
- ½ cup of yogurt

Directions:

1. Before preparing any food, always **sanitize your food prep area** (See “Complimentary Resources” at the bottom for directions) and **wash your hands** for 30 seconds.
2. Add all ingredients into a large blender and mix!
3. If it is too thin for your preference, add more frozen berries. If it is too thick for your preference, add more milk or orange juice.
4. Pour into a bowl and add some tasty toppings!



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Suggested Toppings

Smoothie bowls are awesome because you can top them with ANYTHING you like! Here are some favourites at FFDC:

- Sliced Bananas
- Almond Slivers
- Fresh or Frozen Fruit
- Granola
- Flaxseeds
- Hemp Hearts
- Chocolate Chips
- Shredded Coconut
- Pumpkin or Sunflower Seeds
- Graham Cracker Crumbs



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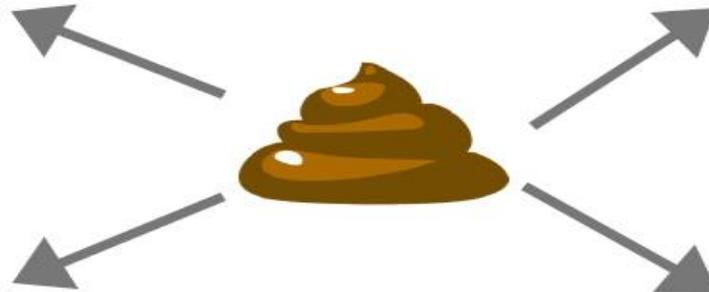
Manure Milkshake Brainstorming

Use this brainstorming web to try to figure out why we call these “Manure Milkshakes”

Hint: Think about how each ingredient may connect to manure.









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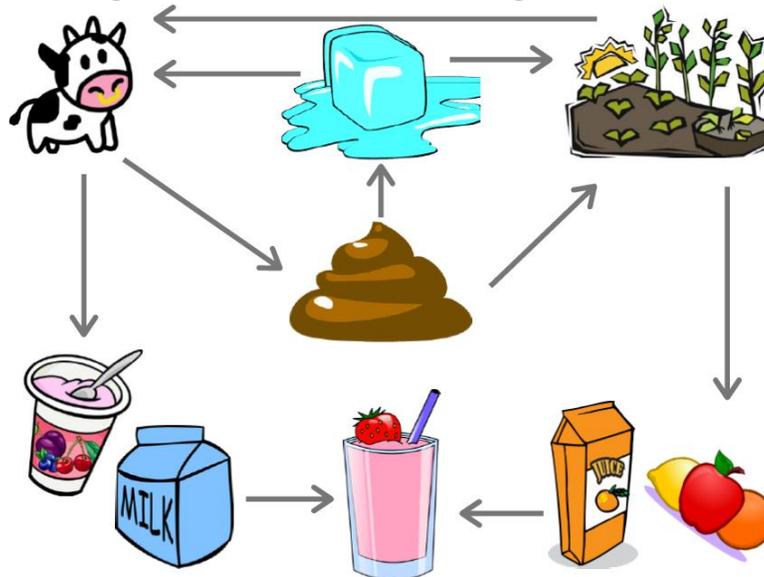
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Fun Manure Facts – ‘Manure Milkshake’ Smoothie Bowls

1. What is manure?
 - Manure is the word used for farm animal feces (poop)
2. So why is manure important?
 - Manure is a natural bi-product of the digestion of animals
 - It is also a great source of nutrients that plants use as food. When something is added to soil to feed plants, we call it fertilizer.
 - Plants take up Nitrogen (N), Potassium (K), Sulfur (S) and Phosphorus (P) from the soil to use as food.
 - Different plants require different amounts of each nutrient to grow to it’s maximum potential. Manure is high in N, P and K
3. Types of fertilizer
 - Animal manure
 - Synthetic (man-made)
 - Compost
 - These fertilizers are not all the same and are used for different reasons. Farmers can choose what type of fertilizer they use and often do so depending on the plant they are growing.
4. Why do we call this smoothie a “Manure Milkshake”?
 - All the ingredients in this smoothie (and in all foods we eat, for that matter) are linked to farming and more importantly to manure
 - Check out this diagram below to see how each ingredient comes from manure.



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- The ingredients all connect to manure some way! Let's look at them individually:
- Milk & Yogurt: Dairy Products are produced by cows. Once the cow gives birth to a calf, she will naturally produce milk. Dairy farmers around the world and across Canada are able to collect the milk from the cows and eventually it goes to a processing plant to be turned into the milk and dairy products we enjoy! So Where does manure come into this? WELL, the cows poop just like you! That manure is collected and can eventually be used as nutrients for plants.
- Fruit and Fruit Juice: Fruit come from plants just like wheat, barley, canola and the other plants we grow in Manitoba. These plants need food in order to grow. They get their food from the SOIL they are planted in. If the soil runs low on nutrients, farmers have to use fertilizer to add more food for the plants. There are many types of fertilizers they can use – artificial, compost or... You guessed it – MANURE! The Manure from animals such as the dairy cows that produced the milk and yogurt used in the milkshake could be added to the soil of plants such as the strawberries and bananas we added! How do plants connect to the dairy cows? Well animals need to eat too! Dairy cows eat plants such as Alfalfa and corn. Then the manure they produce can go towards feeding other plants to feed other animals like humans!
- Ice: This one is a bit of a stretch, but stay with us. When ice is melted, it becomes water. Cows and plants both need water. BUT the more interesting connection is that manure can be used to create electricity that *could* be used to freeze water into ice. This is done in an anaerobic digester. Essentially, the manure is stored in a large metal tank inside a greenhouse. The temperature in the greenhouse can get above 50°C which heats up the metal tank. When the manure heats up, it separates so that the solid part of the manure sinks to the bottom, the liquid part stays in the middle, the gas part rises to the top. That gas can be converted into electricity that could be used to offset the electricity needs for the farm. The solid and liquid parts could then be used to feed plants.

Complimentary Resources:

- Easy and Effective Countertop Sanitizer Mixture:
https://umanitoba.ca/faculties/afs/discovery_centre/at-home-learning-resources.html

Check out our other resources available at

https://umanitoba.ca/faculties/afs/discovery_centre/at-home-learning-resources.html

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