

How to model digestion using tights

From <https://www.bbc.co.uk/bitesize/topics/zf339j6/articles/zrm48mn>

- Digestion is the process of the food we eat being **broken down** into substances that our bodies can use.
- The digestive system provides our body with the **energy** it needs.
- It is vital that our body gets the **correct amounts** of each food group in every meal.



WHAT YOU NEED: A tea-towel, a glass of water, a glass of orange juice, a banana, a bowl, some biscuits, a sealable plastic bag and one leg from a pair of tights.



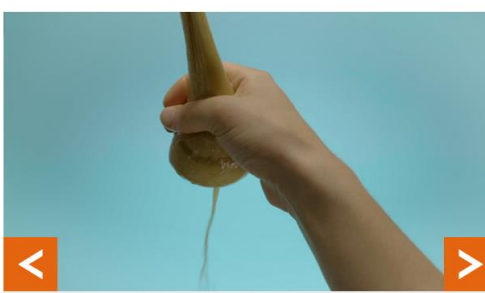
STEP 1: Mix the food.



STEP 2: Churn the contents in the bag.



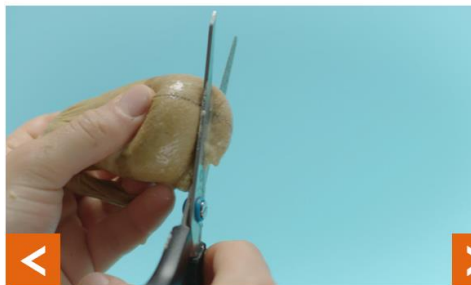
STEP 3: Transfer the mixture to a pair of tights.



STEP 4: Squeeze.



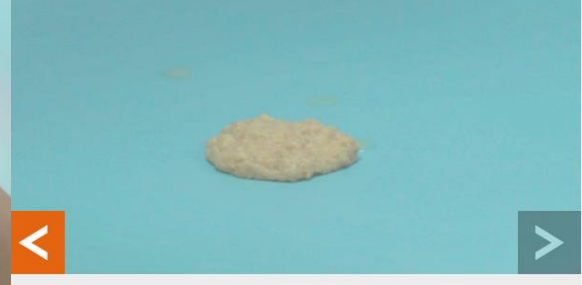
STEP 5: Dry out!



STEP 6: Cut a hole in the pair of tights.



STEP 7: Squeeze out through the hole.



STEP 8: The result of the digestive system. Poo.

What is digestion?

- Digestion is an important process in the human body. It helps us get the nutrients our body needs to stay healthy.
- Digestion happens in the **digestive system**, which begins at the mouth and ends at the anus.

What nutrients does our body need?

A balanced diet provides our body with the **correct** amount of each food group, so that our body can function at its best:

- Carbohydrates
- Lipids (fats and oils)
- Proteins
- Vitamins
- Minerals
- Dietary fibre
- Water

What happens during digestion?

Different things happen to food as it passes through the digestive system:

- Food is broken down **mechanically** and **chemically** in the mouth.
- The smaller molecules of food pass into the **stomach** and **small intestine**, where they continue to be broken down.
- Digested food is **absorbed** into the bloodstream in the small intestine.
- Excess water is absorbed back into the body in the **large intestine**.
- Any **undigested food** passes out of the anus as **faeces (poo)** when we go to the toilet.

How can we model this process?

The clear plastic bag represents the stomach which is a large muscular sac that contains **hydrochloric acid**, it is able to churn the food, mixing it with the acid so that it can be broken down into even smaller molecules.

The food is then poured into the tights, this represents the small intestine inside the body. This is where the nutrients from the food we have eaten is absorbed.

The small intestine is well adapted for digestion: it has thin walls, making it easy for food molecules to pass through into the blood stream.

The last stage of digestion involves the large intestine that absorbs water and any remaining nutrients from the small intestine. Once this has been done the waste products are then excreted from the body as faeces.