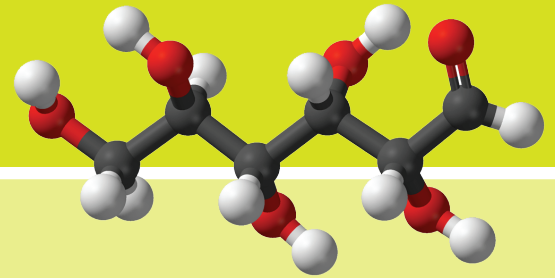


Sourcing Sugars

Aim: To investigate which foods and drinks contain glucose.



Background Information

There are many different kinds of nutrients our bodies need to stay healthy. These include **vitamins, proteins, fats** and **carbohydrates**. We get these from eating a variety of different foods.

For us to do everything we need to (walking to school, playing sports, learning in class) we have to give our body energy. We get this energy from nutrients called carbohydrates. They are found in foods like whole grains, fruit, vegetables, bread and pasta.

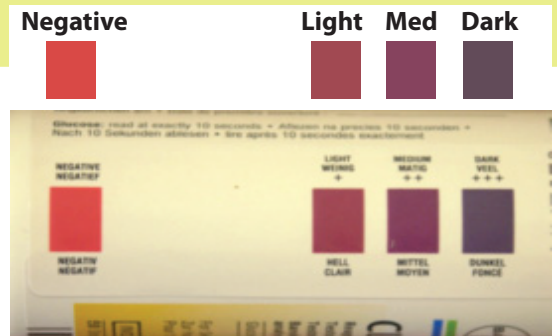
There are two types of carbohydrates – simple carbohydrates and complex carbohydrates.

Simple carbohydrates are sugars, like **glucose**. These carbohydrates are easy to digest and provide a quick energy source.

Complex carbohydrates are things like **starches** found in grains and some vegetables. They require more digestion than simple carbohydrates and are the body's best source of energy because they provide energy for longer. The digestive process transforms these into glucose

In this experiment we are going to look at some everyday food and drinks to see if we can find out which, if any, contain glucose.

We can use a special test sticks called Clinistix to test for glucose. These sticks will change colour if there is glucose in the food or drink. The darker the colour, the more glucose there is.



What to do

Setting up the tubes;

- 1 Label each of the test tubes with a number.
- 2 Using a dropper, place 1ml of each sample into a separate test-tube. Use a different dropper for each sample.
- 3 Note in the table overleaf which sample is in which numbered tube.

Testing the samples;

The samples will be tested one by one with a Clinistix test strip (use a new strip for each sample).

- 4 Dip the test strip into the liquid and remove immediately.
- 5 Remove any extra liquid by tapping the strip on the side of the test tube.
- 6 After 10 seconds, compare the colour of the strip to the colour chart.
- 7 Record the colour of the strip in the table overleaf by ticking the appropriate box.

Your Table

Tube Number	Sample	Clinistix Result			
		Negative	Light	Medium	Dark
1					
2					
3					
4					
5					
6					

Conclusions

? Which solutions did not cause the test stick to change colour?

? Why was there no colour change with these liquids?

? Which test solutions contained the highest amount of glucose? How could you tell?

? Which test solutions contained the lowest amount of glucose? How could you tell?

Extra Information

The human body needs glucose as a fuel for all the cells.

Ideally, the levels of glucose in the blood (blood sugar level) should be kept within a very narrow range. If blood sugar levels remain too high in the body for long periods of time or dip too low, this can cause problems.

A disease called diabetes causes the amount of glucose in the blood to be too high because the body cannot use it properly. This can be for one of two reasons;

- The pancreas does not produce any insulin, or not enough (Type 1 Diabetes)
- The body cannot properly use the insulin that is produced (Type 2 Diabetes)

There are two special chemicals (hormones), insulin and glucagon which have the job of keeping blood sugar levels balanced. These hormones are made in the pancreas.

