



GOLD AWARD PROJECT IDEAS



typically 70 hours of project work



How much starch is in a potato?

Before you start your investigation, you should carry out a risk assessment and have it checked by your teacher. For help with this, read through our health and safety information and look out for health and safety warnings in the text.

All potatoes contain starch; however, some varieties of potato have more starch than others. The amount of starch in a potato affects what it's used for in terms of cooking and food preparation. In this project, you will investigate the starch content of different varieties of potato and see how this affects their viscosity.

Getting started

You should begin this project by finding out how the starch content of foodstuffs affects cooking and food preparation. Which varieties of potatoes are used to prepare certain food products, and why?

You could link up with someone from the agricultural industry to find out what sorts of potatoes they grow and what they're used for. Food manufacturers may also be able to provide you with information.

Select some spuds to test. Try to pick as wide a selection of varieties as possible, for example, new potatoes, white potatoes, red potatoes and baking potatoes. You could also try pre-prepared potatoes, such as chips.

Starch content

- Test your potatoes for the presence of starch using iodine as an indicator. Use this method to see if it is possible to produce qualitative data to rank your potato varieties from those having the most to those having the least starch content.



Take care, even dilute solutions of iodine can stain skin and clothing

- Find out how you can use a colorimeter to determine the starch content of your potato selection. This will provide you with quantitative data.
- Now rank your spuds in order of starch content from highest to lowest.

Cleaning the pan

When you boil potatoes some of the potato disintegrates and can get stuck to the saucepan. It usually sticks due to the presence of starch. Design an experiment to investigate which detergents are most effective in the removal of starch from saucepans.

- See what effect detergent has on the structure of starch by examining slides of boiled potato pulp, stained with iodine with a light microscope.
- Test different detergents, and different concentrations of the same detergent to determine the most cost effective way of cleaning your saucepan.

Potato starch and viscosity

Potato starch is found in a wide variety of foods, dyes, adhesives, gums and pharmaceuticals. Try finding out how potato starch is made and its uses. One key property of potato starch is its viscosity. Investigate how to use a Marsh funnel to determine the viscosity of your selection of potato varieties. Compare their viscosities and suggest which of the above applications they would be most suitable for.

