

INVESTIGATING FLOURS

Method 1

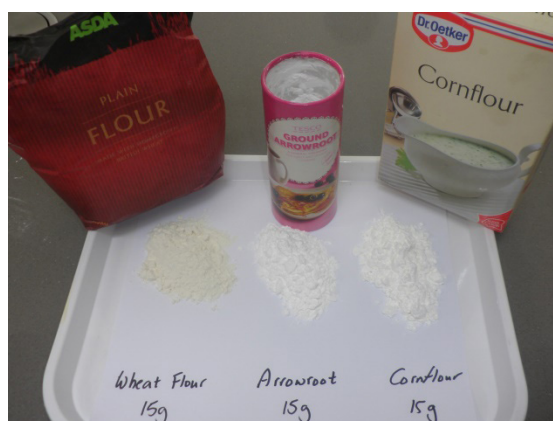
Aim

- Investigating the different flours that can be used as sources of starch for thickening
- Comparing the colour, clarity and stiffness obtained between different starch sources

Equipment

- Digital scales
- Digital timer / stop watch / clock with a second hand
- 3 small bowls
- 3 sticky labels and marker pen
- Pastry brush
- 3 small saucepans
- 3 wooden spoons
- 3 plastic spatulas
- 1 measuring jug
- Viscosity mat
- Ruler

Ingredients



- 15g plain white flour (this is wheat flour)
- 15g cornflour
- 15g arrowroot
- 180ml cold water x 3 (for each starch)

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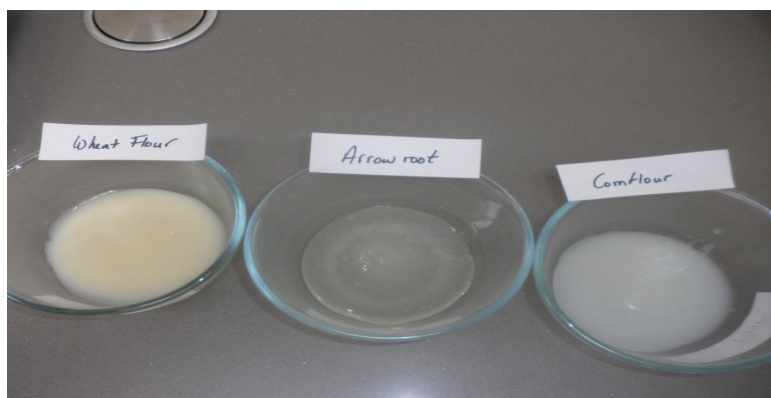
- Write the name of each starch on each sticky label and stick to the outside of your small bowl.
- Using the pastry brush, gently brush the inside of the bowl with cold water
- Place the 15g of the carefully weighed starch into your saucepan and stir in 180ml of cold water with the wooden spoon.
- Observe – what can you see?

Wheatflour	Arrowroot	Cornflour

- Begin to slow heat the starch and water in the saucepan.
- Make sure you stir the starch and water continuously – observe what is happening
- When you start to see the starch thicken, cook for 1 minute, making sure you stir continuously. **DO NOT LEAVE UNATTENDED**
- After 1 minute of stirring transfer the cooked starch into the pre-wetted glass dishes, make sure you scrape all of the thickened starch into the bowl using the plastic spatula. Leave to cool (speed up by refrigerating for about 1 hr)
- *This cooling mix is called a gel. A gel is liquid which is dispersed in a solid (so the liquid in this case is the water and the solid is the starch granules which have swelled).*

Results

You are now going to compare the colour, the clarity and the viscosity of each set gel. Create a table to record your results:



	Plain white flour (wheat flour)	Cornflour	Arrowroot
Colour			
Clarity (is the gel clear or cloudy?)			
Viscosity (how far does the gel spread?)			

Conclusions

Summarise your findings here, consider:

Which gel spreads the least, which gel spreads the most?

Which starch would you use to thicken a fruit pie filling?

Which starch would you use to thicken a sauce over a strawberry flan?

Which starch would you use to thicken a roux based béchamel sauce? Explain your answer:

What happens if you don't stir continuously when the starch and water are being heated?