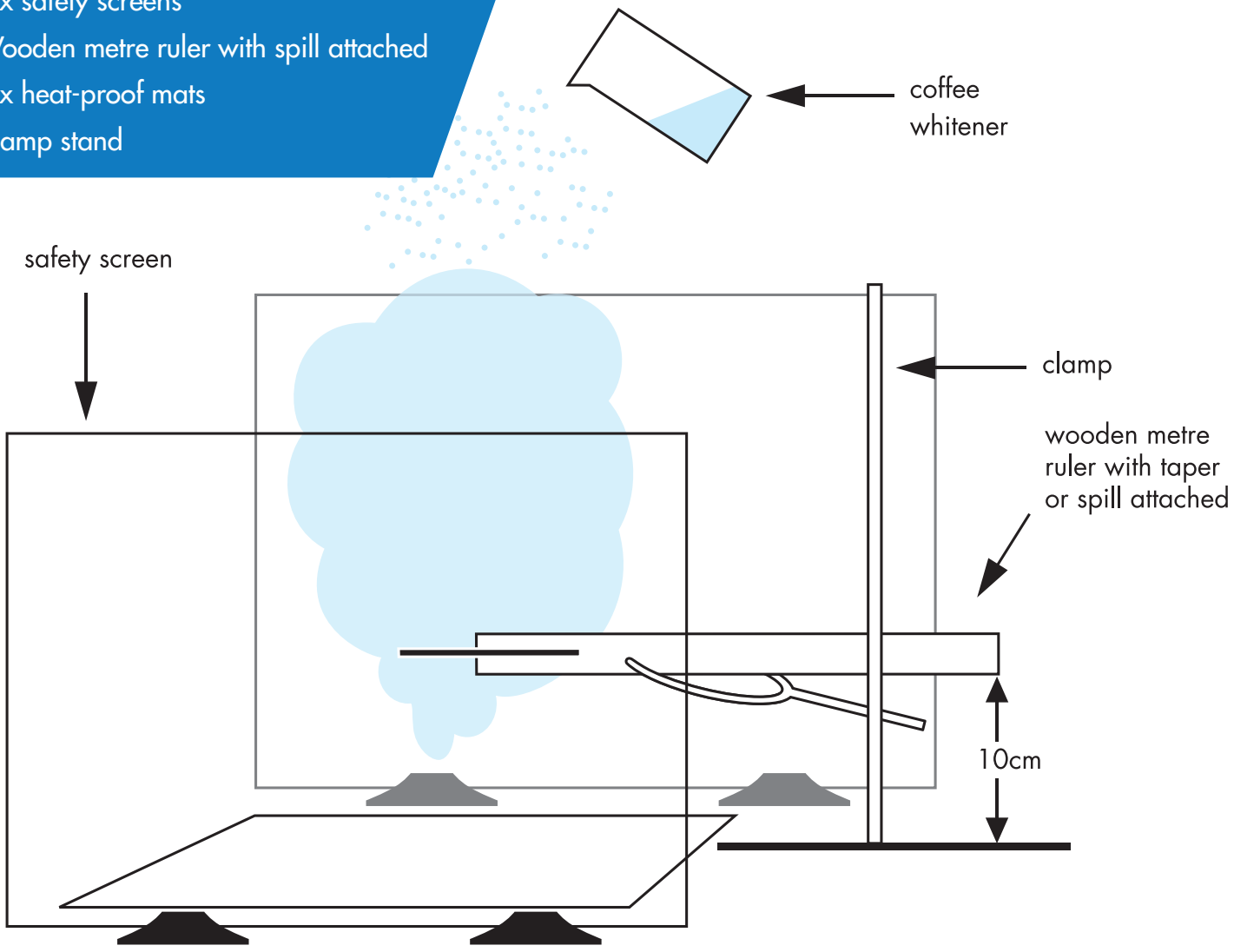
Top 10 Flash Bang Demos

Number 10
Powder flames

Demonstrate the release of **energy** from food in a dramatic way

Equipment

- 100ml beaker ¼ filled with coffee whitener (supermarket own brand works well)
- 2 x safety screens
- Wooden metre ruler with spill attached
- 4 x heat-proof mats
- Clamp stand



Safety precautions

Safety goggles should be worn.
The flames are quite large and need to be controlled using safety screens.
Only use a small amount of whitener and take care when pouring.

Always carry out your own risk assessment for this demonstration.

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Method

- Set up apparatus as shown in the diagram
- Place four large heat-proof mats on the floor
- Spill should be 10 cm above the ground and directly above the centre of the mats
- Place safety screens to either side of the ruler
- Light the spill
- Gently shake the coffee whitener over the lit spill

The science bit

This demonstration can be used to show the effect of particle size on flammability, and the amount of energy released from food during respiration. The fine particles of organic powder undergo rapid combustion when shaken over the spill due to the high surface area exposed to oxygen in the atmosphere.

Demonstration tips and interesting facts

To demonstrate the effect of particle size on flammability, you can illustrate to your students before beginning this demonstration that a lump of powder cannot easily be ignited.

Gunpowder factories were built with one weak wall or a weak roof. This was so an explosion would only destroy part of the building.

Although the release of energy inside a human body by respiration is much slower, the same amount of energy would be released.

Other things to try

Demonstrate that non-organic powders (e.g. chalk dust) will not produce the same effect.

Instructions are in accordance with CLEAPSS guidelines and safety information.