

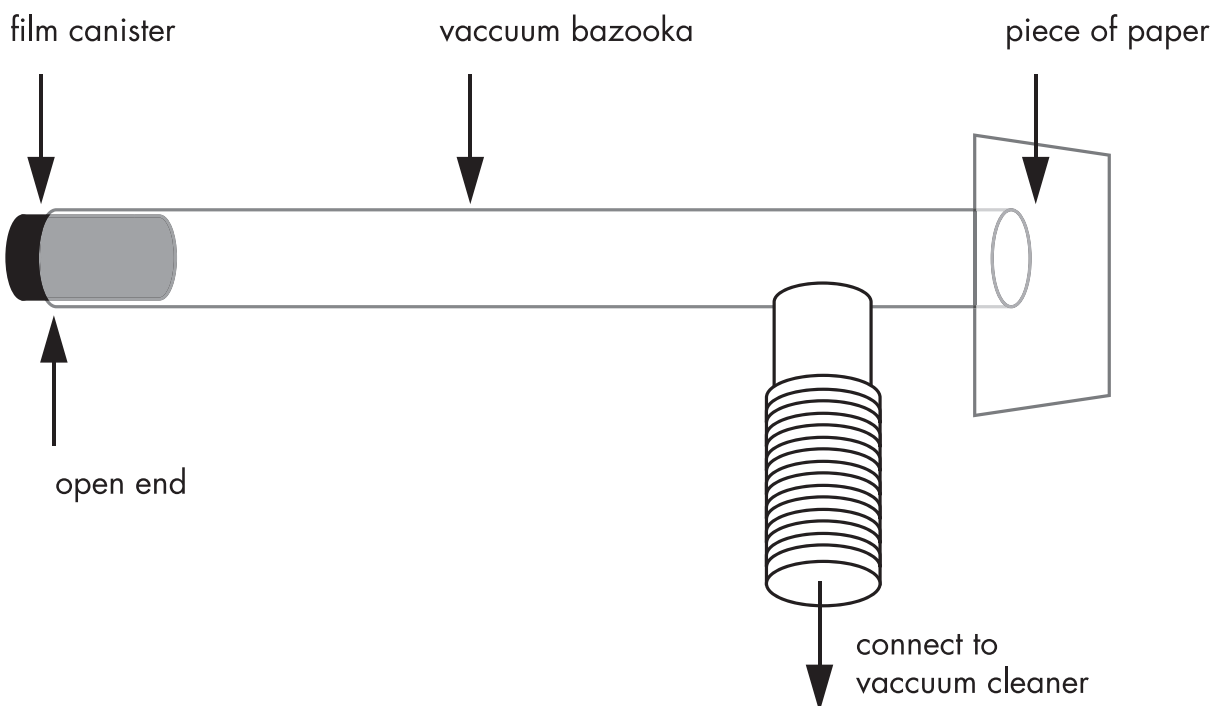
Top 10 Flash Bang Demos

Number 7 Vacuum bazooka

Launch film canisters **10 metres or more** using this powerful device

Equipment

- 1 Vacuum Bazooka (available from suppliers including Scientific and Chemical Ltd)
- 1 vacuum cleaner with a flexible pipe
- Film canisters and other projectiles!
- Small pieces of paper



Safety precautions

Ensure students and fragile objects that could be damaged are not in the line of fire.
Supervise operation by students.

Always carry out your own risk assessment for this demonstration.

Why not
CHEMENG
SHAPE THE FUTURE...



TOP 10 Flash Bang Demos

Number 7 Vacuum bazooka

Method

- Attach the end of flexible vacuum cleaner hose to the vacuum bazooka
- Turn the vacuum cleaner on and point the shortest end in the direction you'll be firing
- Put a piece of paper over this end
- Hold a projectile at the other end. If using an empty film canister make sure the bottom end goes in first
- Take aim, ensuring no students or fragile objects are in the firing line
- Let go of the projectile

The science bit

When the vacuum cleaner is turned on, the paper stays on the end of the tube due to the low pressure created by the removal of air, and causes a strong flow of air to come in from the back. When you let go of the film canister it is carried along by the air flow gaining speed and momentum as it moves down the tube. Once it reaches the front, its momentum will carry it past the connection, dislodging the paper and projecting it forward.

Demonstration tips and interesting facts

The more powerful your vacuum cleaner the further the projectiles will travel, some having reached 25 metres in our own tests.

This resembles a child's pop gun in reverse.

Other things to try

How far can the projectile travel?

How accurate can you be with the bazooka, - can you hit a target?

Does lengthening the tube make it more accurate?

How does the mass of the projectile affect its travel?

How does changing the angle of launching affect the distance travelled?

Who is the most accurate in the class?

Discuss what could happen if the vacuum cleaner was strong enough to take all the air out of the tube.

Instructions are in accordance with CLEAPSS guidelines and safety information.