

LESSON – 11

FORCE AND PRESSURE

Interesting way to begin the chapter Force and pressure

EGG POPS INTO A BOTTLE

What's oval and wears a shell suit? An EGG, of course!

For Kushal as long as it was only a riddle on eggs it was fine. He did not like eating them at all! Do you want to know what he did to the boiled egg that his mother gave him to eat?

One day, Kushal's mother gave him a boiled egg for breakfast.

“I will eat the breakfast in my room, ma”, said Kushal as he carried the plate to his room.

“You must eat it and no tricks today” shouted mother from the Kitchen.

A little while later mother heard a “pop” sound from Kushal's room. She went in to find out. “What happened, what was that sound?” enquired mother.

“Nothing, ma”, said Kushal trying to hide something behind his back.

“What are you trying to hide? Show me at once”, ordered mother.

Mother was shocked to see the boiled egg inside a bottle. She took the bottle from Kushal and tried to take out the egg. But she couldn't. So, you have been upto your tricks again. How did you manage to do this? Kushal meanwhile could not stop giggling. How naughty he was! He explained to his mother about how the egg went inside the bottle. You too can try it, but be careful while using a matchstick.

YOU WILL NEED:

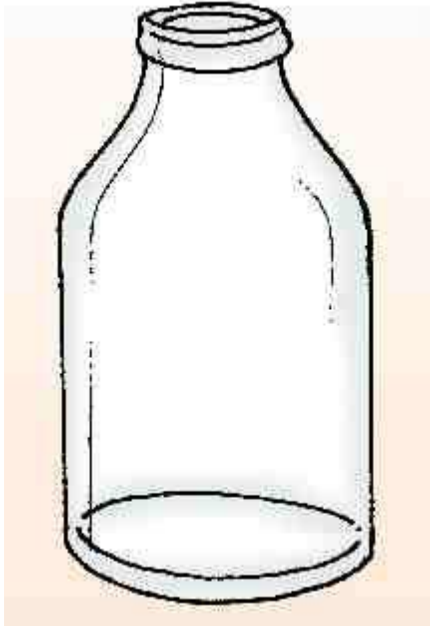
A boiled egg, empty milk bottle (or any glass bottle onto the mouth of which can be fitted a boiled egg), some paper strips and matchbox.

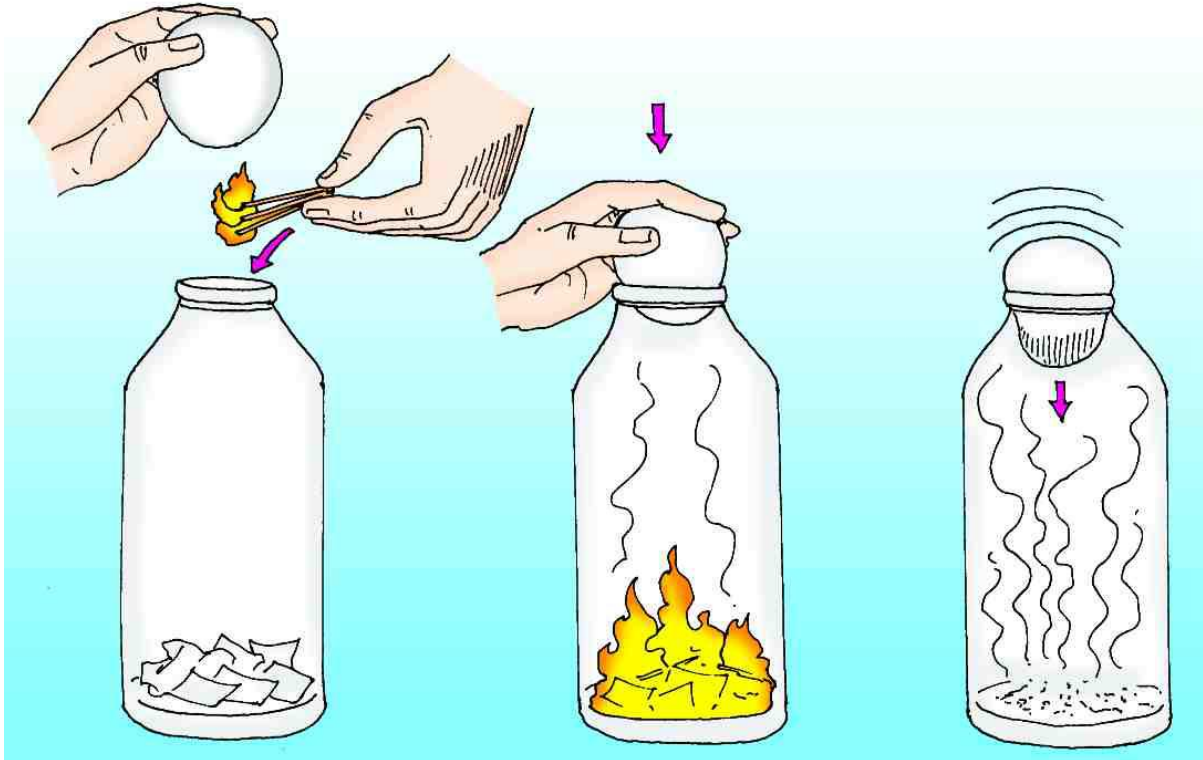
WHAT TO DO

Remove the shell from a hard boiled egg. Use a glass bottle with a mouth large enough through which an egg can be squeezed through without squashing it. Place the boiled egg with its small end down on the mouth of an empty bottle. Does anything happen to the egg? Does it move? Take the boiled egg off the bottle?

Burn the strips of paper and drop these burning papers quickly into the bottle.

Quickly place the boiled egg once again on the mouth of the bottle. What do you find now? Does the egg remain at the mouth of the bottle or is it sucked in?





I have learnt:

The burning paper heats the air inside the bottle. When air is heated it expands and some of it escapes out of the bottle. When the flame goes out, the air inside the bottle cools and contracts, which takes up less space. This creates a low pressure inside the bottle than the outside. The greater air pressure outside the bottle forces the egg to get sucked into the bottle.

Something more to do:

Now try to take the egg out of the bottle. How will you do that? Try it and share your findings with your friends.

STORY 2-
A FORCEFUL STORY

TEACHER: What helps you to lift your school bag?

STUDENT: Our muscular force.

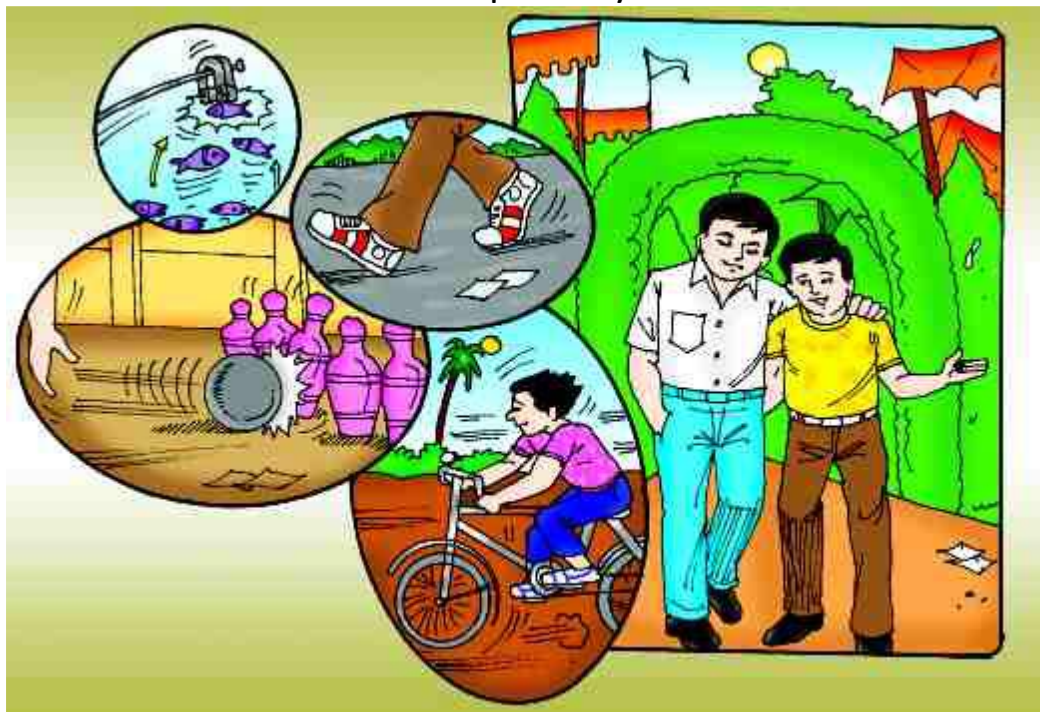
TEACHER:(Drops a piece of chalk on the ground). And what makes this chalk fall down?

“Gravity”, shouted the students.

TEACHER: Good! All of you seem to have understood the different types of forces that we learnt last week. Now let us do something different and interesting. Write a story!

WHAT TO DO:

Form groups with four students in each group. You have to create an action story where examples of different types of forces must be mentioned. Here is an example for you ---



A FORCEFUL STORY TO EXPLAIN THE CONCEPT OF FORCE AND PRESSURE

Suraj and Iqbal spent an enjoyable day at the amusement park. They took part in a cycle race, **pedaling hard (muscular force)** to reach the finishing line. Iqbal was lucky and caught ten iron fish with his **magnetic fishing rod (magnetic force)**. Meanwhile at the next stall, Suraj **knocked down (impulse force)** six wooden bottles with the

balls he **threw (muscular force)**. Each one won him a prize. He was less lucky at the bowling alley, where his **balls slowed down (friction)** too soon and could not get him any prizes. Tired but happy, they **walked (muscular force)** home. Before you begin, remember that each one of you in the group has an important role to play. One of you will be the coordinator, who has to make sure that everyone in your group participates and gets to contribute to the story. Another member of your group will be the time keeper, who will keep a watch on the time and ensure that the story is written within the allotted time. One of you will be the recorder, who will write the story as it develops. Last, but not the least will be the reader, who will read out the story, loud and clear, to the rest of the class. Remember to underline phrases in your story where examples of forces are mentioned.

Go on and let your creative ideas flow!