

# How much can you carry?

CBSE, Grade 2, Maths

This aim of this lesson is to make students understand the concept of heavy vs light. Initially I had thought that this concept would be easy for children to understand. I taught it with some examples and activities given in the book and children answered well when asked in the whole group. I was happy.

The situation changed when I gave them individual assignments. I found that children were able to answer only when they lift and feel the weight and not when asked to answer worksheets. Children also had confusion with size and weight - they thought bigger objects are heavier. Then I realized that they need some more hands on experience and discussion.

To validate my assumption I used worksheets at different levels -

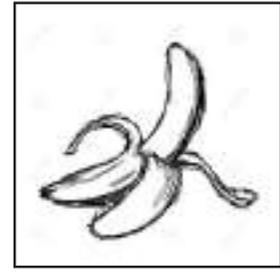
- Pictures of objects – where children can see and identify. E.g. Fridge - iron box
- Materials on balance – they can answer if they understand that heavier object will go down
- Cut and paste heavier object one side and lighter the other side
- Compare three concrete objects
- Giving independent examples on heavy and light objects

**a. Whole group work** - emphasis was laid on the logic applied by the child for their answers, be it right or wrong.

I gave a copy of the worksheet to each child. Each question had two items out of which one was light and the other was heavy. For example,



And



Students had to colour the heavier one. They sat in a circle and I guided them on how to answer the worksheet. After each question, I stopped to ask them, which is heavier or lighter and asked them to colour it.

To address their doubts on size vs weight, I showed them two balls – a big plastic ball and a small rubber ball. Every child was given an opportunity to lift both and decide which is heavier. They tried with some more objects on their own. By the end of the activity, half of the class was able to say that even big objects can be light in weight.

**b. Paired work** – allowing children to work independently

The next question was similar to the previous one. This time they were asked to sit in pairs, discuss and colour the lighter item. I went around seeing if any student needs support. After every one finished, they formed a circle for discussion. I asked each child to reason why they coloured a particular object. One girl said 'helicopter is lighter compared to car'. When asked she kept repeating that the helicopter

is lighter than a car. It was much later that I understood that she was comparing a plastic helicopter with a real car. Similarly, a boy coloured cake in comparison with a candy. I realized that it was difficult for children to imagine the weight of certain objects by just seeing the picture.

**c. Independent work** - to assess individual understanding

Students had to circle the heavier item. Interestingly, one child had circled all the boxes. When she was given real objects, asked to lift and find out which is heavier, she was able to give the right answer. However, she made mistakes in the worksheet. I decided that I had to do something more to make children understand.



**Balance using Scale** - I set up a balance using a scale and a box. I placed different objects on it and asked children if they were able to say which is heavier. I placed a big plastic bottle on one side and a small rubber ball on the other; children saw that the rubber ball was heavier. It reaffirmed to them that objects that are big in size are not necessarily heavier. Afterwards, children were allowed sometime to tinker with the set up and objects and explore on their own.

## Day 2

The next day I used many more objects – Balls in different sizes, shapes and weight, bowls, cups, tumblers, plates, blocks, bottles, boxes, leaves, heavy motors, etc. and a weighing scale. The children were taken outside the

classroom and made them hold, lift, feel the objects.

We discussed two ways of differentiating heavy and light objects.

1. Objects of the same size but differing in weight: plastic ball and cricket ball, water bottles with and without water, ring balls made of rubber and plastic, brick and wooden box
2. Weight is not based on the size: iron and plastic ball, wooden and thermocol cubes, plastic bat and cricket ball, bamboo stick and iron rod

**Weigh using hands** - I displayed all the items in front of the children. Students went one by one and picked up any two items of their choice. They lifted and told which of the two objects is heavy. As one student performs, the others listen.



Each child was given time to think and respond.



After this, students went back, drew the items in their notebook and coloured the heavier object. This reinforced the concept in their minds.

**Weigh using Scale** - I took a big plastic ball and a marble and asked students to guess which would be heavier. Students in chorus replied



that the ball is heavier. I gave both to each child to get experience the weight. Then children were saying that marble is heavier. The same materials were kept on the balance and verified. This reinforced that idea. Students picked different objects and compared them on the balance to conclude which of the two is heavier. Students came one by one and compared the weight of the items on the scale; I sat in the middle and helped the students.

Once all students were done comparing, they stood in a line and displayed which was heavier and which was lighter. They raised the lighter item and brought the heavier item down. I re-emphasised this so that students can imagine a balance while they are balancing. One of the student raised the heavier item and brought the lighter item down. It was probably because, she though heavy means more and must be placed on the top. I made the student lift a small motor on one hand and the paper on the other. The child raised the paper easily but struggled to lift the motor. Here it was explained that since it is heavier, the motor is down. Hence heavier things are down and lighter things go up.

### Day 3

I gave the worksheet, which has three objects for comparison. Except one boy who is mentally challenged, all others got the answers right. Children could not read the instruction but they were able to decode. Therefore, I underlined the words 'heavier' or 'lighter' and terms like 'circle, colour and tick'. This helped children to complete their worksheets. I asked them to write the name of the objects against the pictures to get a better understanding of the object they have in mind – toy fridge, real car etc. I was happy that children had finally understood the concept of heavy and light objects.



**Vidya, PST**  
GPS Odaiveli