

Copycat bees

Outside the classroom stands a red wooden bee hive.

When you open the door and press on the lightswitch you can see the honeycomb.

Bees make wax combs for collecting a winterstock of honey. They also use the wax combs to lay eggs in. The eggs develop into larva, pops and bees.



1. In the wooden bee hive you can see how the bees have built their honeycombs. A comb consists of little boxes that are called cells.

Try to draw 6 cells. Use the whole square.

Drawing of a honeycomb

On the tabel lies a piece of honeycomb.This is built by the bees. Please be careful.

2. While drawing you must have noticed that the cells have 6 corners(hexagonals). To find out why the bees make hexagonal and not round cells you can do the next instruction.
 - A. Put 10 round pieces in one of the bowls on the weightingscale and 10 hexagonal pieces in the other bowl on the weightingscale. What do you notice?

- the round pieces are much lighter than the hexagonal pieces
- the round pieces are much heavier than the hexagonal pieces
- the round and hexagonal pieces are about the same weight.

You must have noticed that the pieces, round and hexagonal have an equal weight. Which means that they contain the same quantity of material.The surface and the content of the round and hexagonal pieces are the same. If you could fill the pieces with honey they would contain the same amount of honey.

- B. There are two flat wooden boxes on the table. The boxes are equal. Place as many round pieces as possible next to each other in one box, next to each other and do the same in the other box with the hexagonal pieces. Fill it up with half pieces. How many pieces are there in each box?

- In the bowl with round pieces are..... whole and..... half pieces.
- In the box with hexagonal pieces are whole and..... half pieces.

C. What do you notice?.....

D. Why do you think that the cells in the comb are hexagonal?.....

3. Next to the table stands a stool made of cardboard. Do you think you can sit on it? Give it a try!

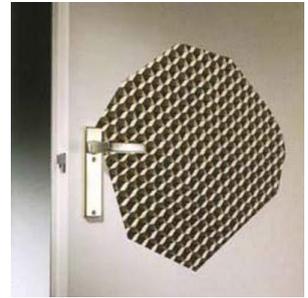
You can see more examples here of hexagonal structures. It is a very strong construction with a minimal amount of material. That is why it is so light. Even the inside of a wing of an airplane has this structure of hexagonal elements, just like the honeycomb.

Paper bicycle helmet

Honeyraat

Cardboard chair

Inside of a door



4. The best way of making a building of playingcards is to use a similar construction as in the drawing. Take a good look at how the cards are placed. If you look closely you discover the hexagonals. Use the marker to indicate the hexagonal.

