Name: _____   Class: _____   Date: _____

How does respiration work?

Experiment 1: Wind slalom course

You need:

- 1 table
- 7 small cones
- Tape
- 1 cotton ball
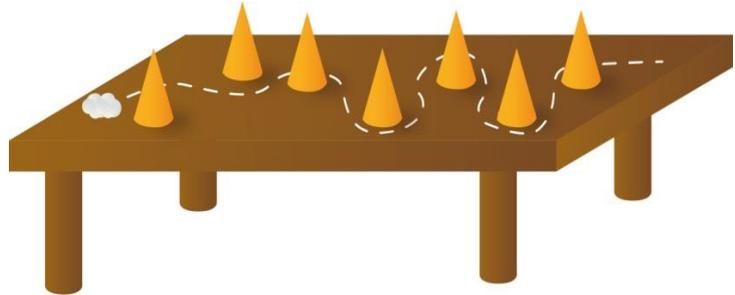
What to do:

1. Set up the cones in a wavy line. If the cones are light, tape them to the table to keep them in place.
2. Try to blow the cotton ball around the cones in the slalom course without blowing it off the table.

### Think about these questions and write down your answers:

When is blowing important for you? In what situation do you have to blow something?

_____

_____

_____

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Name: _____ Class: _____ Date: _____

Experiment 2: Straw suction exercise

You need:

- 1 empty bowl
- 1 bowl containing 3 peas
- 1 drinking straw
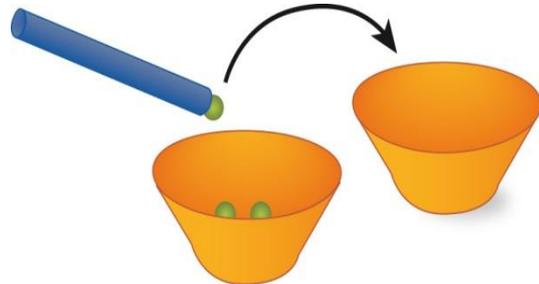
What to do:

1. Put the straw in your mouth. Suck on it and pick up a pea from the bowl.
2. Now try to put the pea in the other bowl without dropping it. You are not allowed to use your hands.

Think about these questions and write down your answers:

When is suction important for you? In what situation do you have to suck something in?

_____

_____

_____

_____

_____

Name: _____ Class: _____ Date: _____

Experiment 3: Measuring your chest

You need:
- 1 tape measure
- 1 partner

What to do:
1. Breathe normally. Your partner places the tape measure under your arms and around your chest and takes a measurement.
   Write down the measurement in the table.
2. Now breathe in deeply and hold your breath for a short time so that your partner can measure your chest again.
   Write down the measurement in the table again.
3. Now it is your partner's turn.

Name	Chest measurement with normal breathing	Chest measurement holding a deep breath
	cm	cm
	cm	cm

Think about this question and write down your answer:
Why are the chest measurements different when you breathe normally and when you take a deep breath?

_____

_____

_____

_____

_____

Name: _____ Class: _____ Date: _____

Experiment 4: We measure exhaled air

You need:

- 1 large bowl with water
- 2 tubes of different lengths
- 1 plastic bottle
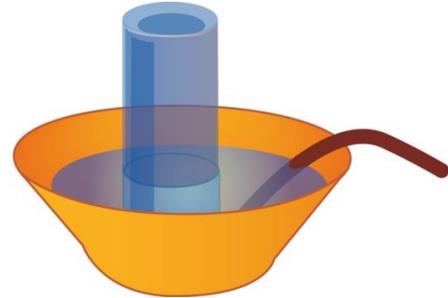
What to do:

1. Place the bottle on its side in the bowl of water and wait until it also fills with water.
2. Tip the bottom upward and keep the opening under water.
3. Now put the short tube into the opening in the bottle. Make sure that the bottle does not lift out of the water.
4. Take a very deep breath and then blow into the tube for as long as you can. Observation:

   _____

5. Fill the water bottle with water again and repeat the experiment with the longer tube. Observation:

   _____

6. Now do 20 jumping jacks and repeat the experiment again right away. Observation:

   _____

Think about it and explain the reason for what you observed:

_____

_____

_____

_____

_____

Name: _____ Class: _____ Date: _____

Experiment 5: Different ways of breathing

What to do:

1. Yawn deeply.
   What does it feel like? What happens with your breathing? Note this down:

   _____

   _____

2. Pretend to hiccup.
   What does it feel like? What happens with your breathing? Note this down:

   _____

   _____

3. Cough.
   What does it feel like? What happens with your breathing? Note this down:

   _____

   _____

4. Pretend to sneeze.
   What does it feel like? What happens with your breathing? Note this down:

   _____

   _____

5. Laugh really hard.
   What does it feel like? What happens with your breathing? Note this down:

   _____

   _____

Name: _____ Class: _____ Date: _____

Experiment 6: We build a model of the lungs

You need:

- 1 plastic tube
- 1 Y-shaped tube connector
- Modeling clay
- 2 household rubber bands
- 3 balloons
- 1 large plastic bottle without a bottom
- Scissors
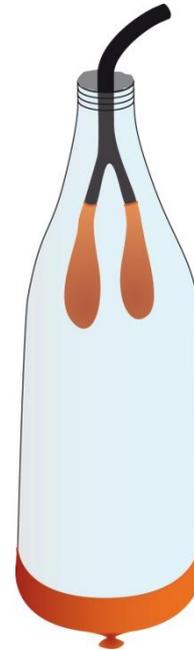
What to do:
1. Place the tube connector in front of you so that it looks like a Y.
2. Push the tube onto the bottom end of the connector and seal the connection with modeling clay.
3. Use the rubber bands to attach two balloons to the two upper ends of the tube connector.
4. Place this Y-shaped arrangement inside the bottle from the bottom. Push the tube from the inside through the opening of the bottle neck and seal this opening with modeling clay.
5. Tie a knot in the third balloon and cut off the top. Stretch it securely over the open bottom of the bottle.
6. Hold the bottle firmly with one hand and pull gently on the knot with the other.

Note what you observe and explain why this is so:

_____

_____

_____

_____