

Experiments contest PF 4

1. A metal ring is heated till glowing.

What will happen with the inner surface of the ring?

- A. the surface doesn't change
- B. the surface gets smaller
- C. the surface gets bigger.

See [Power Point](#) on the science on stage website

2. Two candles, one small and one big, are burning.

What will happen if we put a glas jar over them?

- A. Both candles go out simultaneously
- B. The small candle stops burning first
- C. The big candle stops burning first

CO₂-gas is one of the combustion products of a burning candle. This gas is heavier than air and “falls” to the bottom of the glas jar. So you could think that the small candle would stop burning first! But because of the heat of the flame of the candle the CO₂-gas expands, gets lighter than air and raises in the jar. So the glas jar gets filled with CO₂-gas from above to the bottom and reaches first the biggest candle!!!

3. A straw is put into water. A second straw of the same length is put at the same dept in oil.

What will happen if you blow into the two straws at the same time?

- A. Bubbles will come out of the two straws at the same time
- B. Bubbles will first come out of the straw in oil
- C. Bubbles will first come out of the straw in water

Bubbles will come out of the straw when the liquid in it is pushed away to the bottom of it. The hydrostatic pressure at this point depends on the density of the liquid. As the density of the oil is smaller then the density of the water bubbles will first come out of the straw in oil.

4. A glass of water is poured into a plastic bottle with a closed off hole at the bottom. When the hole is opened, it takes 10 seconds to empty the bottle.

How long will it take to empty the bottle if you pour two glasses of water into the bottle?

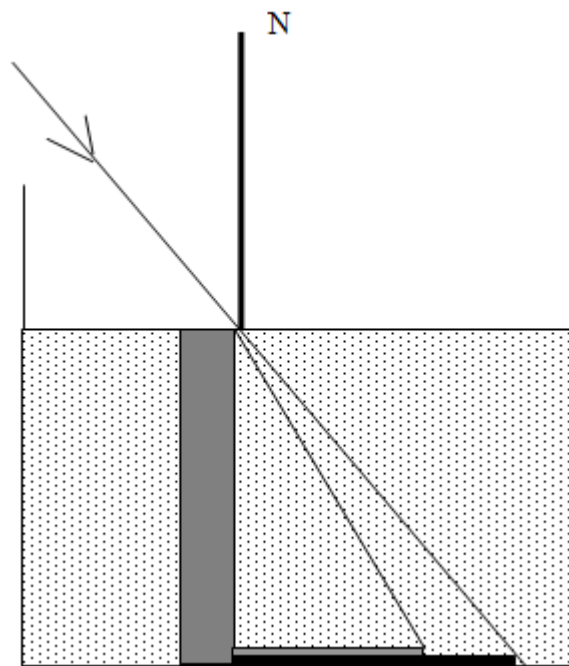
- A. 10 seconds
- B. 15 seconds**
- C. 20 seconds

When two glasses of water are in the bottle the water level is twice as high as for one glass of water. So the water pressure is also twice as high. Due to this the first glass will be filled in half the time (5 seconds). As the second glass is filled in 10 seconds, the total time for filling the two glasses will be 15 seconds.

5. A piece of metal is standing straight in a plastic container. A light is shining on it from the side.

What will happen with the shadow of the metal when you pour water into the container?

- A. the shadow gets longer
- B. the shadow gets shorter**
- C. the shadow stays the same



Answers: 1. C 2. C 3. B 4. B 5. B PW

Some statistics:

Correct answers	0/5	1/5	2/5	3/5	4/5	5/5
On 104 participants	8	14	46	35	16	5