

## **Blowing Hot and Cold**

Why can we blow cold when we want to cool down hot drinks but hot when we want to warm our hands?

- Hold your finger about ten centimetres in front of your mouth and blow as if you wanted to blow out a candle, pursing your lips. Does the air feel hot or cold on your finger?

**Hot                  Cold**

- Now, open your mouth and blow as if you wanted to warm up your finger on a cold day. How does the air feel this time?

**Hot                  Cold**

Why does this happen? How can your mouth tell if you want to blow hot or cold?

All the air that you breath out is warm, because it comes from inside your body, and the inside of your body is always about 37°C.

When you want to cool something down, you blow faster and disperse more air. The cool air that you felt on your finger was dispersed air, rather than air directly from your mouth.

We can check whether this hypothesis is correct.

- Hold your finger right in front of your lips, as if you were telling someone to be quiet.
- Now blow as if you wanted to blow out a candle, pursing your lips. Does the air feel hot or cold on your finger?

**Hot                  Cold**

- Now, with your finger still in front of your mouth, open your mouth and blow as if you wanted to warm up your finger on a cold day. How does the air feel this time?

**Hot                  Cold**

This shows that the air coming directly out of your mouth is always warm.

- Take a strip of paper and hold it close to your mouth. Purse your lips and blow the paper, as if it were a candle you wanted to blow out.
- Now open your mouth and blow on the paper as if you wanted to warm it up.
- Which time did the paper move most?

**Blowing with pursed lips**

**Blowing with open mouth**