



# 26. Steamed up mirror

REPORT

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# Problem to be investigated

When one blows air on a mirror or a window pane, it gets foggy. Investigate this effect.

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# Theory

The amount of moisture that air can hold is proportional to its temperature: warm air holds more water vapor than cold air. Roughly speaking, each  $5.5^{\circ}\text{C}$  increase in air temperature *doubles* the water it can hold. The air coming from our mouths is warm and very moist.



# Theory

When the warm, moist air hits the much cooler (room temperature is about  $13^{\circ}\text{C}$  cooler than body temperature) mirror, the air cools so much that it can't hold all of the water vapor, so it condenses into droplets on the glass. We can observe the same phenomenon in a window without blowing air on it in winter. This happens because of the temperature difference between the outside and the inside of a house

# Hypothesis

- ▶ The hotter the air the more fog we will see
  - ▶ The opposite is also true
  - ▶ Blowing for longer will produce more fog but it will also have more time to evaporate
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# Variables

- ▶ Time blowing air
- ▶ Blown air temperature

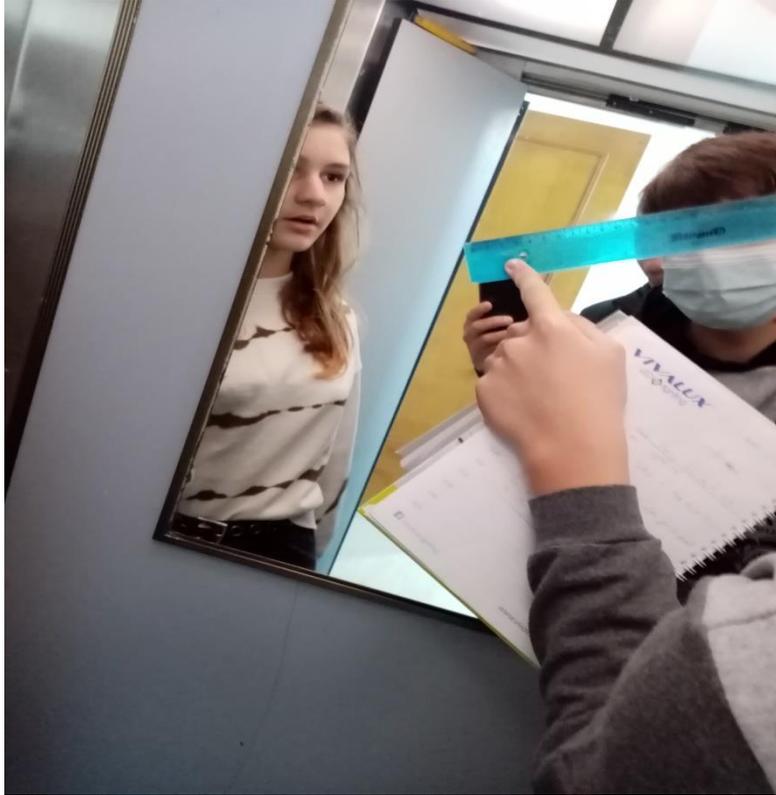
# Constants

- Room temperature
- Person breathing
- Mirror
- Distance from mirror

# Experiment



# Experiment



# Results:

time(sec)	temperature(oC)	distance(cm)
10	28	10
10	24,5	5
10	20,5	0

time(sec)	temperature(oC)	distance(cm)
1	28	10
1	24,5	4,5
1	20,5	0

time(sec)	temperature(oC)	distance(cm)
5	28	15
5	24,5	8
5	20,5	0

# Conclusion

- ▶ The hotter the air the more fog there will be
  - ▶ The colder the air the less fog there will be
  - ▶ Blowing for longer does produce more fog but the previous fog evaporates
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# References

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**THANK YOU  
FOR YOUR ATTENTION**

