

Changes

Approach: Team

Level: Year 8

Focus: Developing and presenting explanations for two temperature related phenomena:
the changes in the state of water and the rate of diffusion of dye in water.

Resources: Video showing ice turning to steam and red dye diffusing in hot and cold water, 2 team instruction cards.

Questions/instructions:

In this activity your team is going to try to explain changes that happen to substances. We'll begin by watching two video clips.

Play video.

I want you to work out good explanations for these changes. You'll start off working in pairs, then work as one team. [Names, students 1 and 2] will work on an explanation for the clip about ice, water and steam. [Names, students 3 and 4] will work on an explanation for the coloured water. Here are the instructions for what you are to do.

Place instructions cards for all students to see, then read them to the team.

I'll give you a few minutes to work out your explanations in your pairs, then we will work as a whole team.

Allow time for discussion in pairs, the bring students together for team discussion.

I want each pair to tell the others their explanations. The others should listen carefully, then comment on the explanation so that the whole team agrees on the best possible explanation. After you have had time to do that, I will ask you to tell me your explanations.



Teacher withdraws and allows time for team discussions.

Now I would like [names, students 1 and 2] to tell me the team's explanation for what happened with the ice, water and steam. After that I want [names, students 3 and 4] to tell me the team's explanation for what happened with the coloured water. Make your explanations nice and clear so that I can fully understand your reasons.

Ice → water → steam:

refer to heat melting ice	71
refers to heat making water boil	37
explains that ice becomes water as it melts	67
explains that water becomes steam as it boils	75
refers to phase changes or different forms of water (solid, liquid, gas)	36
refers to extra heat required at phase changes (latent heat)	20

Dye spreading in cold and hot water:

observes that dye spreads faster in hot water	88
explains spread due to faster, stronger currents (convection)	17
explains spread due to faster molecular motion (diffusion)	21

% responses

y8

Commentary:

Most of the year 8 student teams identified the phenomena presented on videotape. Fewer succeeded in explaining these phenomena.