

Middle School Science

Name:

Date:

Radiation Worksheet

This worksheet accompanies slide 2 of *Radiation.ppt*

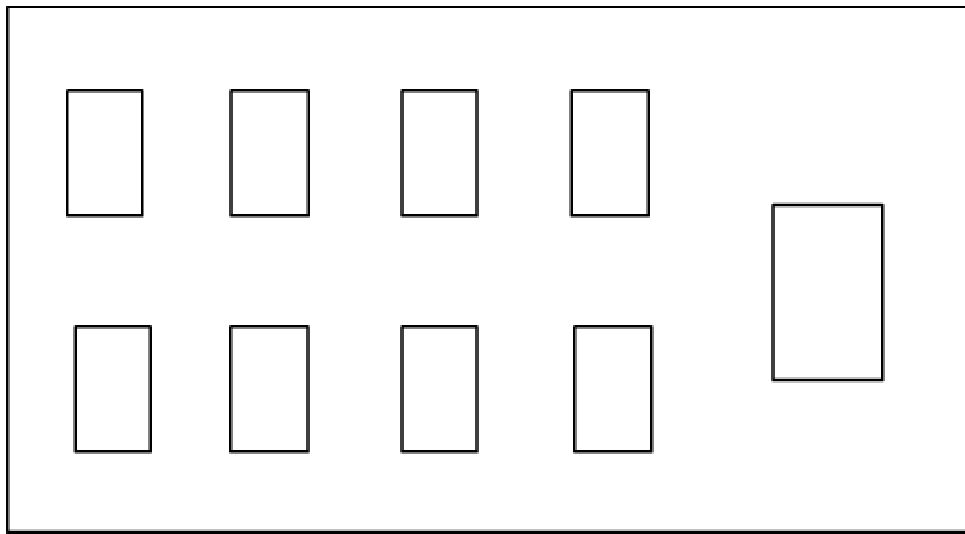
Modeling heat transfer

This worksheet will explain how you can model the three types of heat transfer in your classroom.

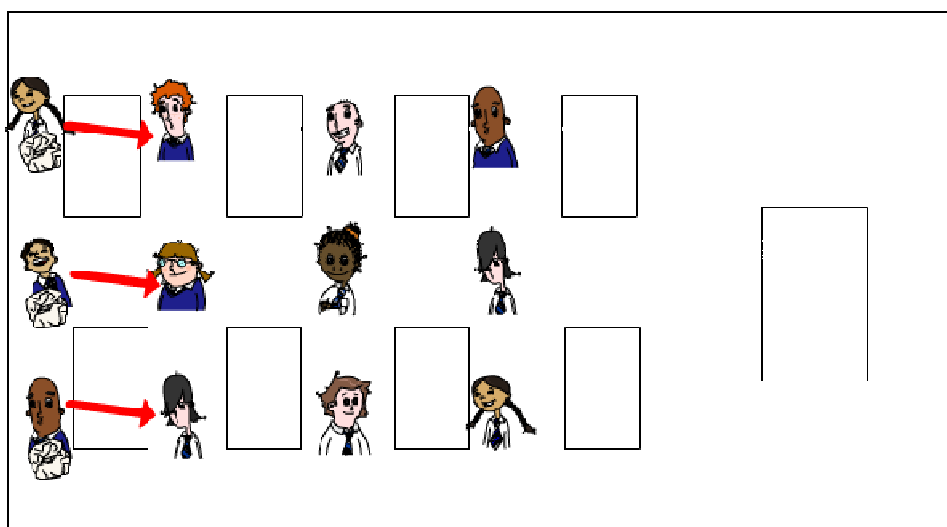
You will need some scrunched-up balls of scrap paper. These will represent heat energy.

Model 1

This diagram represents a basic classroom:



For this model, all students should stand close enough to each other to just be able to touch with their arms outstretched. No one is allowed to move. Students at the very back of the classroom should be holding the scrunched-up balls of paper. Move the balls of paper around by passing them from hand to hand.



Model 1 diagram

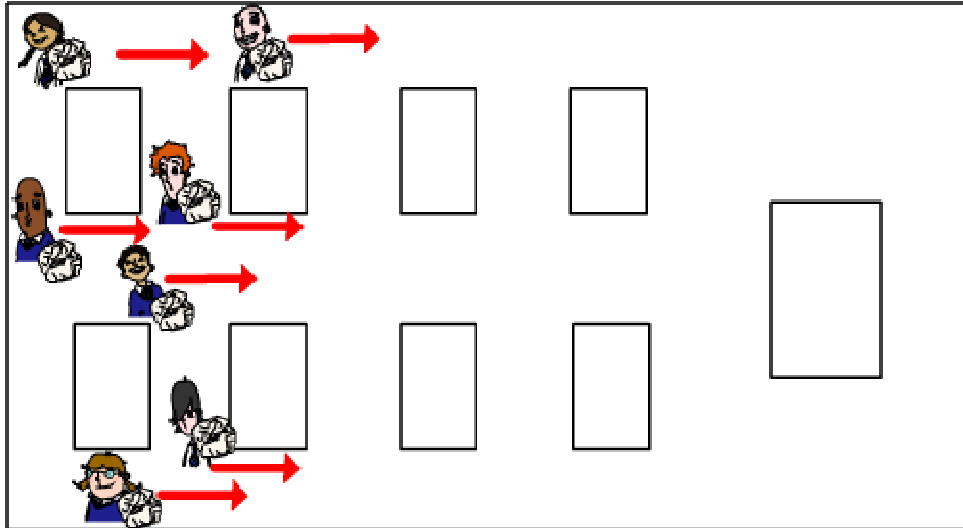
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Model 2

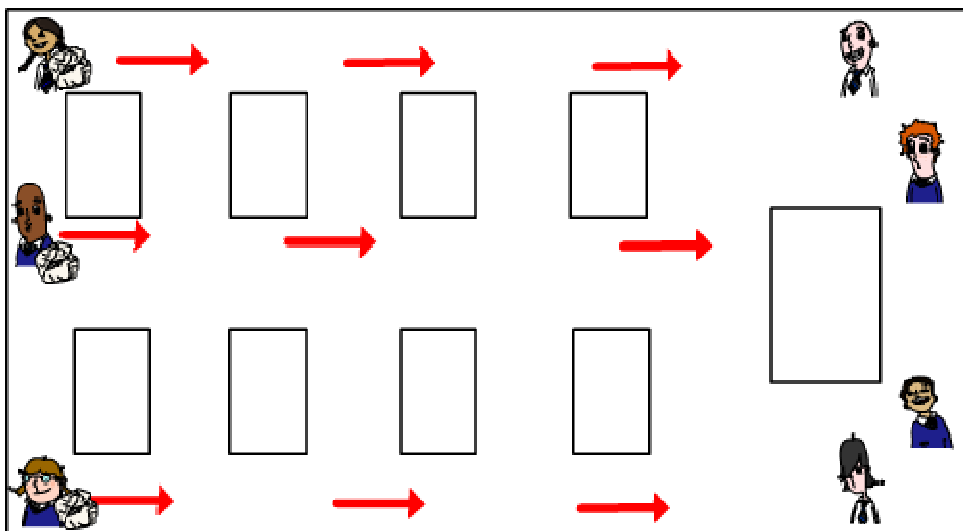
For this model, all students should start by standing at one end of the classroom holding one ball of paper. The students should then spread out throughout the room. Try to move randomly and fill all the available space.



Model 2 diagram

Model 3

For this model, students should split into two groups and stand at opposite ends of the classroom. Only one of the groups should be holding the balls of paper. The group holding the balls should then throw them gently to the group at the other end of the classroom.



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Questions

1. Which model represented which form of heat transfer? Draw lines to match the correct answers.

Model 1 •

• **Radiation**

Model 2 •

• **Convection**

Model 3 •

• **Conduction**

2. In the models, what do you think the students represent?

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3. In **Model 1**, what state do you think the substance being modeled is in: solid, liquid or gas?

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4. In **Model 2**, what state do you think the substance being modeled is in: solid, liquid or gas?

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5. Which model would you use to represent how heat energy from the Sun reaches Earth?

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6. Do you think these models represent heat transfer well? Can you think of a way that one of them could be improved?

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