

## 9E Heat Transfer

### Read:

Thermal energy flows from higher temperature to lower temperature. This process is called heat transfer. Heat transfer can occur three different ways: heat conduction, convection, and thermal radiation. Using section 9.3 of your student text as a guide, define each method of heat transfer.

Heat conduction:

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Convection:

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Thermal radiation:

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### Practice:

Read each scenario below. Then explain which type of heat transfer is described. Some scenarios involve more than one type of heat transfer.

1. Mia places some frozen shrimp in a strainer and pours hot water over it so the shrimp will thaw faster.

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2. On a hot summer day, Juan can walk comfortably in bare feet on the concrete sidewalk, but finds that the asphalt road will burn the soles of his feet.

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3. A hawk soars upward, riding a thermal.

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4. An electric space heater warms an office.

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5. A mother duck sits on her eggs to keep them warm.

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6. A car parked in the sun reaches an interior temperature of 140°F in 40 minutes.

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7. Nick always adds milk to his coffee so that it's not too hot to drink.

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8. A strong sea breeze makes a regatta (sailboat race) more exciting.

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9. Warm water piped under a marble floor makes the floor feel warm to bare feet.

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10. The warm water pipes under the marble floor heat the entire room.

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