

B3 ACTIVITY 2: COIN ON PAPER

Background

Metals are generally considered good **heat conductors**. Paper, on the other hand, will readily burn. But what will happen if paper is placed between a flame and a coin? The metal behaves as a **thermal conductor**, **drawing heat** away from the paper and thus preventing it from burning. Computers depend greatly on such thermal conductors, more commonly referred to as heat sinks. Because the computer's processes generate heat, these 'sinks' are strategically placed to draw this heat and prevent the machine from overheating. Similarly, the water in a car's radiator acts as a thermal conductor absorbing the heat from the engine.

Equipment required (per group):

- Two small squares of thin card or stiff paper
- Coin
- Candle
- Matches
- Tongs
- Timer
- Beaker of water



Figure 11



What to do:

1. Light the candle.
 - ② *How long do you think it will take for one of the small squares to burn if held over the flame? Remember, the hottest part of the flame is just above the tip of the flame.*
2. Hold one of the pieces of card in the tongs and position it just over the tip of the flame. **Time** how long it takes to **start smouldering**. (No need to set it on fire.) Record the time taken and carefully leave the card aside. (Why?)
3. Hold the second piece of card in the tongs, balance the coin on top of the card. Hold the card and coin just over the tip of the flame as shown in Figure 11 and at the same time start the timer.
4. When the timer reaches the same as recorded in step 2, remove the card and examine the side that was nearest to the flame.
5. Compare the state of the two pieces of card.
 - ② *Is there a difference?*
 - ② *Can you explain why?*

Resources:

- There is a video of this activity from Science on Stage.
[Click here to view it in English.](#)
[Click here to view it in Irish.](#)