Bushfire and ice • Combustion reactions

**Year 9**

|  |  |
| --- | --- |
| **Name:** |  |

# Activity 1: Burning candle

### Question

Does the candle change weight when it is burnt for 2 minutes?

### Equipment

* Tealight candle
* Matches
* Scales
* Stopwatch

### Procedure

1. Use the scales to weigh the candle. Record the weight.
2. Use the match to light the candle.
3. Allow the candle to burn for 2 minutes. Blow the candle out.
4. Reweigh the candle. Record the weight.

### Results

|  |  |
| --- | --- |
| Details | Weight (g) |
| Candle before being lit |  |
| Candle after burning for 2 minutes |  |

### Discussion

1. Identify if mass was gained or lost during burning.
2. Calculate how much the weight of the candle changed after burning for 2 minutes.
3. What claim can you make about the reactants or products of the combustion equation?
4. Describe the evidence to support your claim. Provide reasoning to link the claim with the evidence.
5. If you repeated the experiment, would you obtain the same result? Why or why not?
6. Describe one thing that this experiment cannot tell us about the combustion reaction.

# Activity 2: Testing for a gas

### Question

What is produced during a combustion reaction?

### Equipment

* Gloves
* Tealight candle
* Small weight or stand for the candle
* Matches
* Petri dish
* 10-15 mL lime water
* Glass jar that fits over candle

### Procedure

1. Place the small weight or candle stand on the middle of the petri dish.
2. Use gloves to pour 10-15 mL of limewater in the petri dish.
3. Place the candle on its stand.
4. Use the match to light candle.
5. Place the glass jar over the candle. Draw a picture of the equipment set up in your notes.
6. Observe what happens to the candle and the limewater.

### Results

Record your observations of the candle.

Record your observations of the lime water.

### Discussion

1. (a) What claim can you make as a result of your observations of the candle?

(b) Describe the evidence that supports your claim. Provide reasoning that links the evidence to the claim.

1. (a) What claim can you make as a result of your observations of the lime water?

(b) Describe the evidence that supports your claim. Provide reasoning that links the evidence to the claim.

1. If you repeated the experiment, would you obtain the same result? Why or why not?
2. Describe one thing that this activity cannot tell us about the combustion reaction.

# Activity 3: Candle in a jar

### Question

What is lost or produced during a combustion reaction?

### Equipment

* Tealight candle
* Matches
* Petri dish
* Glass jar that fits over candle
* Scales

### Procedure

1. Use the scales to weigh the candle, petri dish and jar. Record the combined weight.
2. Use a match to light the candle.
3. Place the jar over candle.
4. Without moving the jar, observe what happens to the candle.
5. Observe any change in weight of the candle, jar and petri dish. Record the weight.
6. Observe any liquid on the inside of the glass jar.

### Results

Record your observations of the candle after the jar was placed.

Record your observation of liquid on the inside of the glass.

|  |  |
| --- | --- |
| Details | Weight (g) |
| Weight of candle, petri dish and jar (before) |  |
| Weight of candle, petri dish and jar (after) |  |

### Discussion

1. (a) What claim can you make as a result of your observations of the candle?

(b) Describe the evidence that supports your claim. Provide reasoning that links the evidence to the claim.

1. (a) Identify if mass was gained or lost during the burning of the candle.

(b) Calculate how much the weight of the candle changed during the activity.

(c) What claim can you make as a result of weighing the candle before and after burning?

(d) Describe the evidence that supports your claim. Provide reasoning that links the evidence to the claim.

1. What claim can you make as a result of your observations of liquid on the inside of the jar? (HINT: was it present at the start of the activity?)
2. Describe the evidence that supports your claim. Provide reasoning that links the evidence to the claim.
3. If you repeated the experiment, would you obtain the same result? Why or why not?
4. Describe one thing that this activity cannot tell us about the combustion reaction.