



# Year 8 Science Sample Resources



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# Astronomy Worksheet 1

Property of Prestige Tuition

1. **State** whether the following statements are true or false:

a) A shooting star forms when a streak of light travels across the sky.

\_\_\_\_\_

b) A meteoroid is a burning meteor.

\_\_\_\_\_

c) Meteorites burn on impact with the Earth.

\_\_\_\_\_

d) Most comets are seen regularly every few years.

\_\_\_\_\_

e) A comet has two tails.

\_\_\_\_\_

f) A comet's tail appears only when it nears the Sun.

\_\_\_\_\_

g) A comet's tail may be millions of kilometres long.

\_\_\_\_\_

2. **Specify** where the following are normally found:

a) Asteroids

\_\_\_\_\_

\_\_\_\_\_

b) Trojan asteroids

\_\_\_\_\_

\_\_\_\_\_

c) comets.

\_\_\_\_\_

\_\_\_\_\_

3. **Specify** how often the following comets reappear:

a) Halley's Comet

\_\_\_\_\_

b) Hale-Bopp.

\_\_\_\_\_

4. **List** seven facts each about the:

a) *NEAR-Shoemaker* landing on Eros

\_\_\_\_\_

\_\_\_\_\_

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b) *Deep Impact* crash on 9P/Tempel.

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5.

a) **Specify** the size range of asteroids.

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b) **State** the size of an asteroid that would threaten Earth.

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6. **List** three possible consequences of a large asteroid entering Earth's atmosphere.

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7. **Describe** what makes shooting stars visible at night.

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8. **Define** the term *meteor shower*.

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9. **Outline** how meteor showers are named.

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10.

a) **Explain** what is meant by a 'global killer'.

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b) **Outline** one suggestion for avoiding destruction due to a 'global killer'.

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11. **Account** for the fact that Ceres was the first asteroid to be discovered.

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12. **Predict** what would happen to Jupiter if it sped up, or slowed down, in its orbit around the Sun.

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13. You see a 'star' suddenly shoot across the night sky. It then 'dies' well above the horizon. **Identify** what type of space rock the 'star' is.

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14. **Calculate:**

a) the year in which Halley's Comet is due to appear again

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b) the years of the last four sightings of Halley's Comet

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c) the year in which comet Hale-Bopp is expected to reappear.

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15. The dust in a comet's tail is affected more by the Sun's gravity than the gas in the tail. Use this information to **explain** how this may cause a comet to have two tails.

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16. **Distinguish** between:

a) a shooting star and a real star, such as the Sun

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b) a meteorite and a meteor.

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17.

a) **Contrast** the size of the crater in the image below with the size of the meteorite that caused it.



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b) **Explain** why nothing of the meteorite is left.

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18. **Contrast** what would happen if:

a) a small and a large meteoroid hit Earth's atmosphere

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b) a large and a small asteroid hit Earth.

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19.

a) **State** how close the asteroid named 2004 FH came to Earth.

b) **Contrast** this distance with the distance between the Earth and the Moon (which is 384 000 kilometres).

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20. Meteor Crater is an incorrect name. **Propose** a reason why.

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21. **Propose** a reason why 9P/Tempel was:

a) a better choice than either comet Hale-Bopp or Halley's Comet on which to crash land a space probe

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b) not expected to change direction after the impact of *Deep Impact*.

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22. It is thought that Jupiter has helped to protect the Earth from impacts, particularly from comets. **Propose** how it might do this.

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23. New meteorites are often found in Antarctica. **Propose** a reason for this.

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# Atoms Worksheet 1

Property of Prestige Tuition

1. **State** the number of:

a) naturally occurring elements

---

b) artificial or synthetic elements.

---

2. **Name** and give the element symbols for:

a) the two most abundant elements in the Earth's crust

---

b) four non-metallic elements

---

c) four metallic elements

---

d) four elements that have symbols starting with C

---

e) six elements with single-letter symbols

---

f) six elements that have 'illogical' symbols

---

g) six elements that have 'logical' symbols.

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3. **List** the physical properties of:

a) Metals

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b) non-metals.

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4. **State** the names of the following elements:

a) Pt

\_\_\_\_\_

b) Hg

\_\_\_\_\_

c) Fe

\_\_\_\_\_

d) K.

\_\_\_\_\_

5. **State** the symbols for the following elements:

a) Hydrogen

\_\_\_\_\_

b) Helium

\_\_\_\_\_

c) Sulfur

\_\_\_\_\_

d) sodium.

\_\_\_\_\_

6. **Name** the following compounds:

a)  $H_2O$

\_\_\_\_\_

b)  $CH_4$

\_\_\_\_\_

c)  $C_{12}H_{22}O_{12}$

\_\_\_\_\_

d) HCl

\_\_\_\_\_

7. **Recall** how to write chemical formulae by writing the formulae of:

a) oxygen gas

\_\_\_\_\_

b) table salt

\_\_\_\_\_

c) petrol

\_\_\_\_\_

d) rust.

\_\_\_\_\_

8. **Define** the terms:

a) Atom

\_\_\_\_\_

\_\_\_\_\_





b) Element

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c) Compound

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d) mixture.

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9. Use examples to **explain** two types of compound structures— molecules and lattices.

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10. Use the periodic table to **identify** an element named after:

a) a place

---

b) a person

---

c) a planet.

---

11. In the following molecules, **identify** the types of atoms and how many there are of each:

a) sulfuric acid:  $\text{H}_2\text{SO}_4$

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b) glucose:  $\text{C}_6\text{H}_{12}\text{O}_6$

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c) vinegar:  $\text{CH}_3\text{COOH}$  (Be careful!).

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12. **Identify** the substances likely to make up the following mixtures:

a) sweet, white tea

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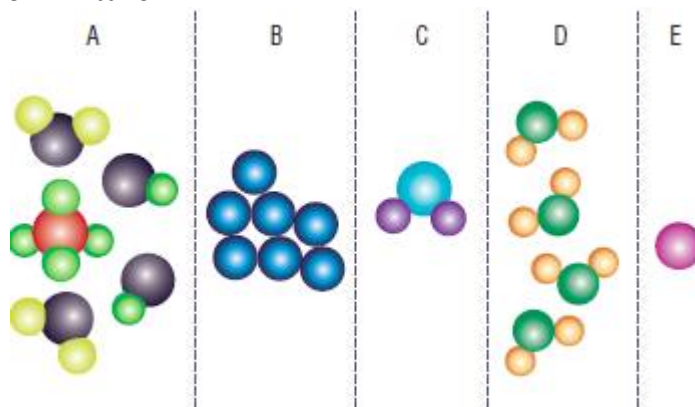
b) champagne

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c) mud.

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13. Identify each of the following diagrams as either an atom, molecule, element, compound or mixture.




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14. Using the descriptions given, **classify** each substance as a metal or non-metal.

- a) I am used to make bicycle frames. I am light in weight but very strong. I can be polished to a shiny finish.
- 
- b) I have a density so low that I am found in the air. I am used by your body to make energy.
- 
- c) I am a solid that breaks easily. I am used to make fertilisers and I am found in gases that smell like rotten eggs. My colour is yellow.
- 
- d) I can be stretched into wires used to carry electricity. I am also used to make water pipes and can be bent easily in different directions.
- 
- e) I am a liquid that is used in thermometers. Although I look very shiny and pretty, I am highly poisonous.
- 

15. **Classify** each of these substances as an element, compound or mixture:

- a) glucose:  $C_6H_{12}O_6$
- 
- b) iron: Fe
- 
- c) beer
- 
- d) phosphoric acid:  $H_3PO_4$
- 
- e) perfume
-



f) tungsten: W

g) alcohol:  $C_2H_5OH$

16. **Compare** the following by listing their similarities and differences:

a) atoms and elements

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b) molecules and compounds.

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17. **Contrast** a molecular compound with a mixture.

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18. **Evaluate** whether you would use a metal or non-metal for the items below.

**Justify** your choice in each case:

a) ship's hull

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b) fishing rod

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c) electrical wires

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d) barbecue hot plate.

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19. The letters of the alphabet can be put together to make up words. Words are put together to make up paragraphs. In this way they resemble elements, compounds and mixtures. **Evaluate** the similarities and decide whether alphabet letters, words or a paragraph best represents:

a) a compound

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b) a mixture

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c) an element.

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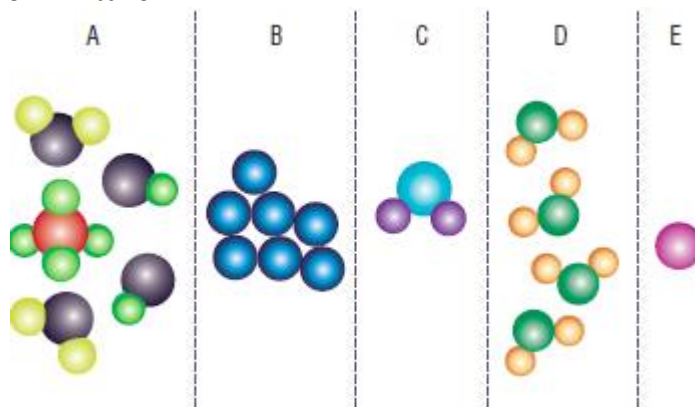
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