# Representing elements and compounds: teacher guidance

These **Knowledge check** worksheets provide a series of questions to assess learners' knowledge and understanding of this topic at the end of a period of teaching or as revision. They are available at Foundation and Higher level and as fully editable versions so you can adapt them to suit learners' needs. Use for individual student work in class or at home. Find the full set of answers below.

Also available to assess this topic:

- **Review my learning worksheets**: available with three levels of scaffolded support to help build confidence in every learner. Use before, during or after teaching the relevant topic, to understand progress and identify misconceptions, rsc.li/44igB7V.
- **In context worksheets** ask learners to apply their knowledge to interesting contexts from everyday life, helping them to develop their skills and prepare for examination, including calculation questions to practise mathematical skills within a genuine chemical context, rsc.li/411kQnF.

## Answers

### Foundation

**1** (a) i. $Cl_2$ [1 mark]

ii. $N_2$ [1 mark]

iii. $O_2$ [1 mark]

(b) $S_8$ [1 mark]

**2** (a) $C_2H_5OH/C_2H_6O$ (accept elements in any order) [1 mark]

(b) [4 marks – 1 mark for each correct cell]

| Chemical formula of compound | Name of atoms in the compound | Number of each type of atom in the compound |
|---|---|---|
| $CO_2$ | carbon, oxygen | 1 carbon atom<br>2 oxygen atoms |
| $CH_3COOH$ | carbon, hydrogen, oxygen | 2 carbon atoms<br>4 hydrogen atoms<br>2 oxygen atoms |

**3** (a) **A** empirical formula [1 mark]

(b) i. $KBr$ [1 mark]

ii. $LiF$ [1 mark]

iii. $NaI$ [1 mark]

(c) i. $MgO$ [1 mark]

ii. $CaS$ [1 mark]

iii. $MgCl_2$ [1 mark]

iv. $CaF_2$ [1 mark]

**4** (a) $NaNO_3$ [1 mark]

(b) $Li_2SO_4$ [1 mark]

(c) $CaCO_3$ [1 mark]

**5** **A** $2Na(s) + 2H_2O(l) \longrightarrow 2NaOH(aq) + H_2(g)$ [1 mark]

[Total: 21 marks]

## Higher

**1** (a) $S_8$ [1 mark]

(b) [4 marks – 1 mark for each correct row]

| Chemical formula of compound | Name of atoms in the compound | Number of each type of atom in the compound |
|---|---|---|
| $C_2H_6$ | **carbon, hydrogen** | **2 carbon atoms<br>6 hydrogen atoms** |
| $CH_3(CH_2)_3CH_3$ | **carbon, hydrogen** | **5 carbon atoms<br>12 hydrogen atoms** |
| $H_2NCH_2COOH$ | **carbon, hydrogen, oxygen, nitrogen** | **2 carbon atoms<br>5 hydrogen atoms<br>2 oxygen atoms<br>1 nitrogen atom** |
| $HOOC(CH_2)_4COOH$ | **carbon, hydrogen, oxygen** | **6 carbon atoms<br>10 hydrogen atoms<br>4 oxygen atoms** |

**2** (a) empirical formula [1 mark]

(b) i. $LiF$ [1 mark]

ii. $KI$ [1 mark]

iii. $NaBr$ [1 mark]

(c) Calcium sulfate contains oxygen, whereas calcium sulfide does not. [1 mark]

(d) i. $Na_2O$ [1 mark]

ii. $MgCl_2$ [1 mark]

iii. $CaS$ [1 mark]

(e) i. $Na_2CO_3$ [1 mark]

ii. $Mg(NO_3)_2$ [1 mark]

iii. $NH_4OH$ [1 mark]

iv. $(NH_4)_2SO_4$ [1 mark]

v. $MgCO_3$ [1 mark]

**3** (a) $Fe(s) + CuSO_4(aq) \longrightarrow Cu(s) + FeSO_4(aq)$ [2 marks]

(1 mark for correct states of reactants, 1 mark for correct states of product)

(b) $CuCO_3(s) + 2HCl(aq) \longrightarrow CuCl_2(aq) + CO_2(g) + H_2O(l)$ [2 marks]

(1 mark for correct states of reactants, 1 mark for correct states of products)

**4** (a) i. copper(I) oxide [1 mark]

ii. copper(II) oxide [1 mark]

iii. copper(I) chloride [1 mark]

(b) i. $FeO$ [1 mark]

ii. $Fe_2O_3$ [1 mark]

iii. $MnO_2$ [1 mark]

[Total: 28 marks]