

Teaching notes

This is a simple activity that students seem to enjoy. Once it is completed they will often ask, 'Can we do it again?'.

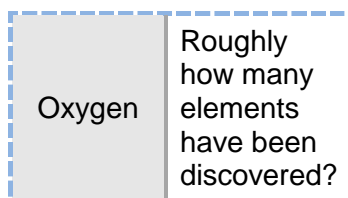
It is suitable for:

- whole class work
- group work
- individual work
- revision
- lesson starters
- lesson consolidation
- homework.

Instructions

Print out the two tables, ideally onto card so they can be used again. If multiple sets are produced, print them onto different coloured card.

Each table needs to be cut down the middle and horizontally to create 32 individual cards, as below.



1. Distribute the cards between members of the group or class.
2. Students may place the cards in front of them or keep them hidden.
3. Explain that it is a bit like dominoes. A question is read out and someone within the group or class has the answer. They read out the answer followed by the next question.
4. Point out that the answer to the previous question is on the left hand side, in the shaded box, and that the new question is on the right hand side, in the unshaded box.
5. The student who receives the card with 'start' on it reads out the first question.
6. The students look at their cards. The one who feels they have the answer puts their hand up and reads it out. If it is correct, they will then read out the next question. Completed cards are placed face down on the bench.
7. Answers are included on p.4. In cases of poor literacy, you could intervene by reading out the next question.
8. The exercise continues until the 'starter' gives the final answer.

Other ways to use the resource

- It can be given as an individual exercise in class or for homework. The student could cut out and stick the cards into their exercise book, placing and numbering them in order. Otherwise, ask students to arrange the cards in sequential order in a pile. They can be quickly checked to see if task is done.
- It can become competitive as a class or group exercise. Time the first occasion you do the exercise and ask the students to record the time somewhere in their exercise books. Next time you do it, challenge them to knock some minutes off.
- Use the activity unexpectedly by asking the class to complete the exercise whilst being taught a different unit. This helps to refresh the memory.

shells.	What's the maximum number of electrons in the first energy level?	A positive charge, because of all the positively charged protons.	There is a third particle that orbits around the nucleus.
The nucleus.	The nucleus is composed of two particles. What are they?	An electron.	What kind of charge does an electron have?
There's the same number of protons and electrons. Their charges cancel each other out.	So if an atom of an element has 12 protons, how many electrons will it have?	2,8,5	When we have two or more atoms chemically joined together, we form a ...
Oxygen.	Roughly how many elements have been discovered?	The periodic table.	What is an atom?
A negative charge.	If the nucleus is positively charged, why is an atom neutral?	16	How are elements arranged in the periodic table?
15	How will they be arranged in its energy levels?	The number of protons in the nucleus of an element.	If an element has 15 protons, how many electrons will it have?
molecule.	When we have different substances chemically joined together, we form a ...	Water. It contains oxygen and hydrogen.	Instead of using 'chemically joined', give a more scientific word.
A proton.	What kind of charge does a neutron have?	A neutron.	What is the relative mass of a proton?

None. It is neutral.	What charge does a nucleus have, then?	100	We know that elements can be arranged in a kind of chart. What's this chart called?
A mixture.	Start: During chemical reactions atoms can neither be created or ...	The smallest part of an element.	What's the name for the small central part of an atom?
Protons and neutrons.	Which particle has a positive charge?	2	What's the maximum number of electrons in the second energy level?
destroyed.	What do we call something that is made up of just one type of atom?	compound.	Give an example of a compound.
An element.	Give an example of an element that is also a gas.	1	What is the relative mass of an electron?
12	The electrons are not bunched together but are in energy levels called ...	8	Which particle has a relative mass of 1 but no charge?
Almost zero.	How do we work out relative atomic mass?	Bonded.	Is salt and sugar together in a beaker a molecule, a compound or a mixture?
According to their atomic number.	What is meant by atomic number?	We add the number of protons and neutrons together.	An element has eight protons and eight neutrons. What is its relative atomic mass?

Answers and order

Card order		Answers and questions on cards
1 Start	A	A mixture. (This is answer to card 32.)
	Q	During chemical reactions atoms can neither be created or ...
2	A	destroyed.
	Q	What do we call something that is made up of just one type of atom?
3	A	An element.
	Q	Give an example of an element that is also a gas.
4	A	Oxygen.
	Q	Roughly how many elements have been discovered?
5	A	100
	Q	We know that elements can be arranged in a kind of chart. What's this chart called?
6	A	The periodic table.
	Q	What is an atom?
7	A	The smallest part of an element.
	Q	What's the name for the small central part of an atom?
8	A	The nucleus.
	Q	The nucleus is composed of two particles. What are they?
9	A	Protons and neutrons.
	Q	Which particle has a positive charge?
10	A	A proton.
	Q	What kind of charge does a neutron have?
11	A	None. It is neutral.
	Q	What charge does a nucleus have, then?
12	A	A positive charge, because of all the positively charged protons.
	Q	There is a third particle that orbits around the nucleus. What is it?
13	A	An electron.
	Q	What kind of charge does an electron have?
14	A	A negative charge.
	Q	If the nucleus is positively charged, why is an atom neutral?
15	A	There's the same number of protons and electrons. Their charges cancel each other out.
	Q	So if an atom of an element has 12 protons, how many electrons will it have?

16	A	12
	Q	The electrons are not bunched together but are in energy levels called ...
17	A	shells.
	Q	What's the maximum number of electrons in the first energy level?
18	A	2
	Q	What's the maximum number of electrons in the second energy level?
19	A	8
	Q	Which particle has a relative mass of 1 but no charge?
20	A	A neutron.
	Q	What is the relative mass of a proton?
21	A	1
	Q	What is the relative mass of an electron?
22	A	Almost zero.
	Q	How do we work out relative atomic mass?
23	A	We add the number of protons and neutrons together.
	Q	An element has eight protons and eight neutrons. What is its relative atomic mass?
24	A	16
	Q	How are elements arranged in the periodic table?
25	A	According to their atomic number.
	Q	What is meant by atomic number?
26	A	The number of protons in the nucleus of an element.
	Q	If an element has 15 protons, how many electrons will it have?
27	A	15
	Q	How will they be arranged in its energy levels?
28	A	2,8,5
	Q	When we have two or more atoms chemically joined together, we form a ...
29	A	molecule.
	Q	When we have different substances chemically joined together, we form a ...
30	A	compound.
	Q	Give an example of a compound.
31	A	Water. It contains oxygen and hydrogen.
	Q	Instead of using 'chemically joined' give a more scientific word.
32	A	Bonded.
	Q	Is salt and sugar together in a beaker a molecule, a compound or a mixture?