

Talking Gases

Originally developed by Steve Cooke. The clues in the speech bubbles can be used to fill in the tick chart. The tick chart can be used to solve Professor Brainiac's gas jar problem. The Connect Four Game is designed to consolidate the knowledge and pupils can refer to the tick-chart to check if they need to.

The webaddress for this activity is:

<http://www.collaborativelearning.org/talkinggases.pdf>

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COLLABORATIVE LEARNING PROJECT

Project Director: Stuart Scott

We support a network of teaching professionals throughout the European Union to promote inclusive education. We develop and disseminate accessible talk-for-learning activities in all subject areas and for all ages.

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BRIEF SUMMARY OF BASIC PRINCIPLES BEHIND OUR TEACHING ACTIVITIES:

The project is a teacher network, and a non-profit making educational trust. Our main aim is to develop and disseminate classroom tested examples of effective group strategies that promote talk across all phases and subjects. We hope they will inspire you to develop and use similar strategies in other topics and curriculum areas. We want to encourage you to change them and adapt them to your classroom and students. We run teacher workshops, swapshops and conferences throughout the European Union. The project posts online many activities in all subject areas. An online newsletter is also updated regularly.

*These activities are influenced by current thinking about the role of language in learning. They are designed to help children learn through talk and active learning in small groups. They work best in non selective classes where children in need of language or learning support are integrated. They are well suited for the development of speaking and listening . They provide teachers opportunities for assessment of speaking and listening.

*They support differentiation by placing a high value on what children can offer to each other on a particular topic, and also give children the chance to respect each other's views and formulate shared opinions which they can disseminate to peers. By helping them to take ideas and abstract concepts, discuss, paraphrase and move them about physically, they help to develop thinking skills.

*They give children the opportunity to participate in their own words and language in their own time without pressure. Many activities can be tried out in pupils' first languages and afterwards in English. A growing number of activities are available in more than one language, not translated, but mixed, so that you may need more than one language to complete the activity.

*They encourage study skills in context, and should therefore be used with a range of appropriate information books which are preferably within reach in the classroom.

*They are generally adaptable over a wide age range because children can bring their own knowledge to an activity and refer to books at an appropriate level. The activities work like catalysts.

*All project activities were planned and developed by teachers working together, and the main reason they are disseminated is to encourage teachers to work more effectively with each other inside and outside the classroom. They have made it possible for mainstream and language and learning support teachers to share an equal role in curriculum delivery. They should be adapted to local conditions. In order to help us keep pace with curriculum changes, please send any new or revised activities back to the project, so that we can add them to our lists of materials.

Talking Gases.

I am in the air, but I am only a tiny part of it. If you pass an electric current through me I glow. That is why people use me in light bulbs and 'neon' signs. When you put a flame in me, the flame goes out.

neon

I am sometimes called 'natural gas' because people pump me out of the ground. If you put a flame in me I burn very easily. That is why people use me for cooking and heating in their homes. I am lighter than air.

methane

I am in the air. In fact I make up about four-fifths of the air. If you put a flame in me, the flame goes out.

nitrogen

I am very light. In fact I am much lighter than air. So, people sometimes use me in balloons because I make the balloons go right up into the air. If you put a flame in me the flame goes out. You can find me in the sun.

helium

I am not poisonous. I am heavier than air. If you put a flame in me, the flame goes out. That is why people use me in fire extinguishers to put out fires. Plants use me to help them make food by photosynthesis.

carbon dioxide

Talking Gases.

I am poisonous. I come from car exhausts. If you put a flame in me, the flame goes out. I am slightly lighter than air.

carbon monoxide

I am in the air. About one fifth of the air is made up of me. When you put a flame in me I make the flame burn brightly.

oxygen

I am a very useful gas. If you put a flame in me I burn. Therefore people use me for gas cookers for caravans and campsites. I can be stored in tanks. People call me 'camping gas'. I am lighter than air.

butane

I am the lightest gas there is. I am much lighter than air. When you put a flame in me I explode. People used to use me for air ships and balloons but because I was so explosive I was rather dangerous. You can find lots of me in the sun.

hydrogen

I am a very smelly and poisonous gas. I smell like rotten eggs. I often come out of factory chimneys and pollute the air and make acid rain. I am a bit heavier than air. If you put a flame in me, the flame goes out.

sulphur dioxide

Talking Gases Tick Chart

	When you put a flame in it...				The gas is.....		
	..the gas explodes.	...the flame burns brightly	...the gas burns.	...the flame goes out.	poisonous	lighter than air	heavier than air
oxygen							
hydrogen							
neon							
butane							
nitrogen							
sulphur dioxide							
carbon dioxide							
helium							
methane							
carbon monoxide							

Professor Brainiac Gets Mixed Up

Professor Brainiac is a rather absent minded and disorganised professor. He had ten different samples of gases in jars. He lost all the labels for the jars. Therefore he had to test all the gases to find out what they were. He did some tests and made some notes on a piece of paper. As you can see, he was not very careful about how he wrote his notes. Also, because he is forgetful he couldn't remember the names of all the gases. Can you help the professor to identify the different gases?



Gas jar number	Features of gas	Name of gas
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Prof B's Notebook

Gas 6 is that one they put in light bulbs.

Gas 4 is heavier than air

Gas 1 is in the air.

Gas 2 burns.

Gas 3 puts out a flame

Gas 9 is poisonous

Gas 4 puts out a flame.

Gas 10 explodes if you put a flame near it.

Gas 8 is heavier than air

Gas 1 makes a flame
burn brightly

Gas 3 is the one which makes up about four fifths of the air.

Gas 5 is lighter than air

Gas 5 puts a flame out.

Gas 2 is lighter than air.
Gas 7 burns.
Gas 9 is lighter than air.

It's the one we use at the caravan

Gases Connect Four Board

it is heavier than air	it is lighter than air	when you put a flame in it the gas explodes	it is in the air we breathe	it is lighter than air
when you put a flame in it the flame goes out	when you put a flame in it the flame burns brightly	it is poisonous	when you put a flame in it the flame burns	when you put a flame in it the flame goes out
it is in the air we breathe	it is lighter than air	when you put a flame in it the flame goes out	when you put a flame in it the gas explodes	it is lighter than air
when you put a flame in it the gas explodes	it is heavier than air	when you put a flame in it the flame burns	it is heavier than air	when you put a flame in it the flame burns
when you put a flame in it the flame burns	it is poisonous	it is in the air we breathe	when you put a flame in it the flame burns	it is poisonous

Gases Connect Four Cards

NEON	CARBON DIOXIDE	SULPHUR DIOXIDE	HYDROGEN	OXYGEN
HELIUM	CARBON MONOXIDE	BUTANE	METHANE	NITROGEN
NEON	CARBON DIOXIDE	SULPHUR DIOXIDE	HYDROGEN	OXYGEN
HELIUM	CARBON MONOXIDE	BUTANE	METHANE	NITROGEN
CARBON DIOXIDE	HYDROGEN	OXYGEN	NITROGEN	SULPHUR DIOXIDE