

Chemistry

Delprov A

Årskurs

6

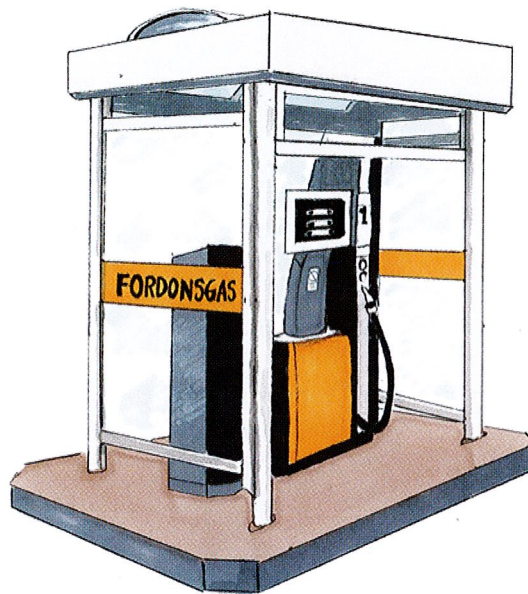
Elevens namn och klass/grupp

The test results summarize your performance on the National test. The mark for the entire term does not have to be in agreement with the test results since the mark is based on all of your performance in the subject and not only on the National test.

The teacher in a class shows a movie about bio gas. After the movie there is a discussion about the content in the movie.



You will watch the movie twice.



The teacher says:

-How about driving a car on energy from potato peelings! That is pretty amazing! Did you know that in the year 2012 almost 45.000 vehicles in Sweden were fuelled by gas.

Love asks:

-Why is it better to drive a car with gas than with petrol?



Your task is to answer Love's question by giving **three arguments** for using bio gas instead of petrol.

Do not forget to use your **knowledge in science** to support your arguments.

Love asks: Why is it better to drive a car with gas than with petrol?

You reply:

A large rectangular box with a decorative top-left corner, containing 20 horizontal dotted lines for writing a response.



What do things like rocks, clouds, and humans consist of?

About 2.500 years ago, some Greek philosophers were thinking about what everything in the world was composed by.

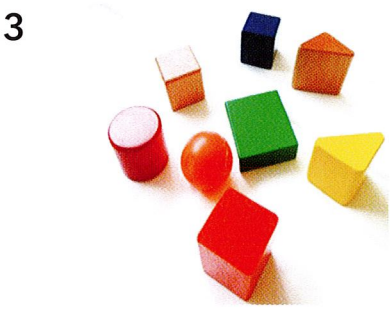
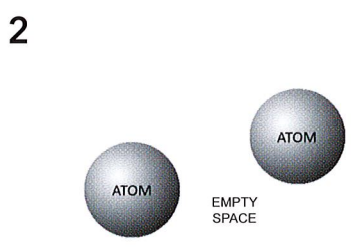
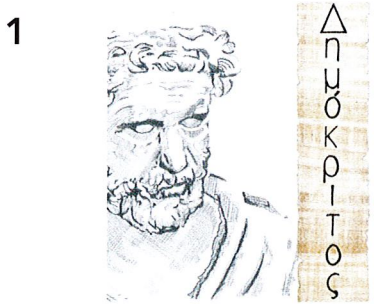
Democritus and his teacher suggested that the world was composed of things too small to be visible to the eye. They thought that if you split something in smaller and smaller pieces, eventually the pieces will become so small you cannot divide them any further. They called these smallest pieces “atoms”, which means “indivisible”. According to these philosophers, the atoms had different colours and different shapes and between the atoms there was nothing but empty space.

Even today we think that everything in the physical world consist of atoms.

A class in school is going to make an exhibition about the views of the Greek philosophers. The exhibition is going to be displayed at the school library.

Some pupils have been asked to find a picture that shows Democritus’ thoughts about how the world is composed of atoms and empty space, but they are unable to decide which picture to choose.

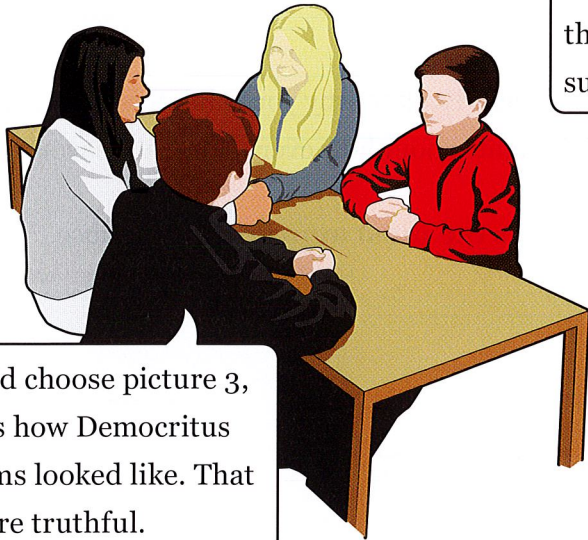
Here you can see the pictures they are choosing from. On the next page you can read what the pupils think.



I think we should choose picture 4, because it shows how Democritus thought that everything consists of smaller pieces.

I think we should choose picture 1, because it shows how Democritus looked like and how to write his name in Greek. You get a feeling for history.

I think we should choose picture 2, because it shows atoms and empty space and that is what the exhibition is supposed to be all about.



I think we should choose picture 3, because it shows how Democritus thought the atoms looked like. That picture feels more truthful.

The picture chosen for the exhibition must clearly communicate Democritus' thoughts about how everything in the world is composed of atoms.

Your task is to help the pupils by **rejecting** three of the pictures.

For each picture you reject, you must **justify** your choice as thoroughly as possible.

I **reject** picture number _____ because

.....
.....
.....

I **reject** picture number _____ because

.....
.....
.....

Turn →



continue from page 7

I **reject** picture number _____ because

.....

.....

.....

Now you only have one picture left. Explain why you think this picture is the most appropriate to communicate Democritus' thoughts about how everything in the world is composed of atoms.

Picture number _____ is **the most appropriate** because

.....

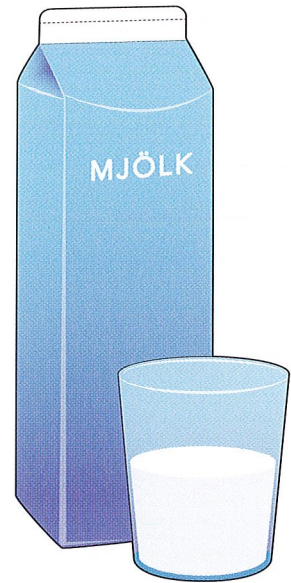
.....

.....

The local authorities have decided to save money and have therefore decided to stop serving milk with the school lunch. The milk will be replaced with water.

The pupils' council wants to keep serving milk on your school. They therefore need to gather arguments **for** the school to keep serving milk. The pupils' council searches information about milk on different web pages and finds the material below.

Read through the material from the web pages and think about which **three** arguments you want to use.



1. Soy milk, or soybean milk, is a beverage made from soybeans. It may be used as a substitute for cow milk.

2. A pupil drinks 1.8 deciliters of milk with the school lunch on the average.

3. Milk and milk products contain many vitamins and minerals.

4. If medium-fat milk is served instead of low-fat milk, the amount of saturated fat in the meal increases. This means that the amount of other fatty milk products needs to decrease, so that the quantity of saturated fat will not be too large.

5. During childhood and adolescence, milk contributes to building up the skeleton and teeth.

6. Iron is an important mineral for the human body. Iron can be found in, for example, meat and some vegetables. If you drink milk with your lunch it is more difficult for the body to absorb iron. This is because milk contains substances that reduce the uptake of iron by the blood.

7. If you do not have enough to eat during lunch there is an increased risk of eating other things, such as candy. Milk can make you feel less hungry.

8. The nutrients in milk make the meal satisfactory. The milk is of special importance for those who do not eat very much food.

9. There are many different kinds of milk to choose from. Besides the amount of fat in the milk, the milk may also be locally or organically produced.

Your task is to write **three arguments** for keep serving milk with the school lunch.

Do not forget to use your **knowledge in science** in order to support your arguments.

You are supposed to use the **information from the web pages** in order to formulate your arguments.

Write down the arguments you think the pupils' council should use.

My arguments for the local politician Flora Laurel Leaf

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....





GÖTEBORGS
UNIVERSITET

Institutionen för didaktik och pedagogisk profession



Högskolan
Kristianstad

Sektionen för lärande och miljö



MALMÖ HÖGSKOLA

Fakulteten för lärande och samhälle

Chemistry

Delprov B

Årskurs

6

Elevens namn och klass/grupp

Test results

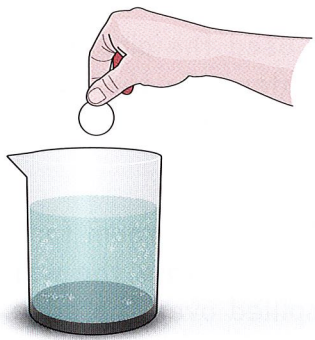
Your test results are based on the knowledge you have shown in the National Tests.

Your term results are not necessarily the same as your test results, as they are based on all the knowledge you have shown in your subjects.

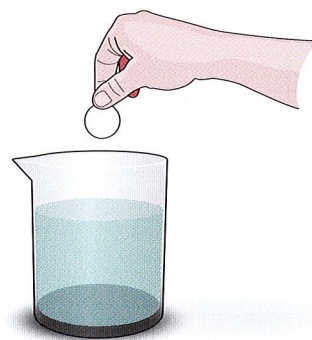
One day, Julia's mother had a headache and wanted to take a soluble tablet to ease the pain. However, she thought it took too long for the tablet to dissolve in normal tap water.

Julia wondered if the tablet would dissolve faster in carbonated water and decided to investigate this.

Help Julia to plan an investigation so that she gets a conclusive result. Write the instructions clearly so that someone else can repeat the investigation.



carbonated water



tap water

.....

.....

.....

.....

.....

.....

.....

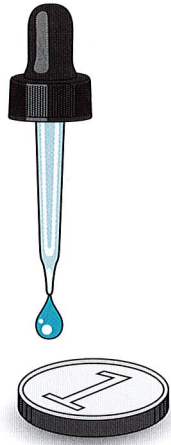
.....

2 | *How many drops can you fit on a coin?*

It is the surface tension of water that gives a drop of water its shape and also the force that holds water molecules together on a surface.

Sara's class conducted an experiment on the surface tension of water. They wanted to discover how many drops of water would fit on a one-crown coin without the water spilling over the edge of the coin.

Here are Sara's laboratory notes:



I used the following material:

**Beaker with water
Pipette
One-crown coin.**

Method:

I used the pipette to drip water onto the surface of the coin.

Result:

There was room for 55 drops before the water spilled over the edge.

TASK:

Not all the pupils got 55 drops as their result. What might cause this? Write as many explanations as you can think of about why the pupils in the class got different results!

1

.....

2

.....

3

.....

4

.....

5

.....



3 | *The Explosions*

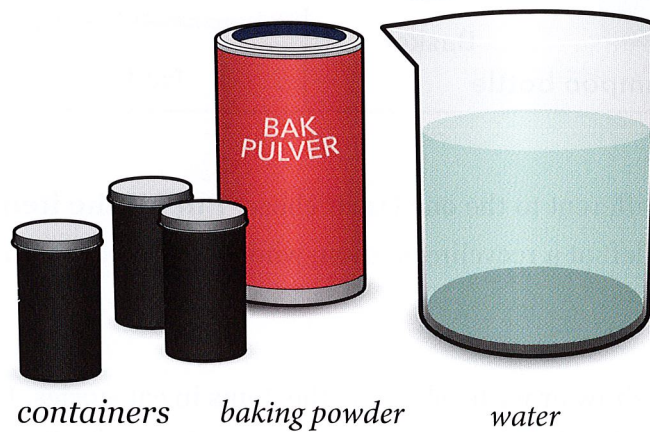
Julia and Philip did an experiment with baking powder and water in a science lesson.

This is what they did:

- They mixed baking powder and water in three containers with tightly-fitting lids
- They shook the containers

The lids flew off with a bang after different intervals of time.

Give Julia and Philip four suggestions about how they could conduct their experiment so that all the containers exploded after an equal amount of time.



1

.....

2

.....

3

.....

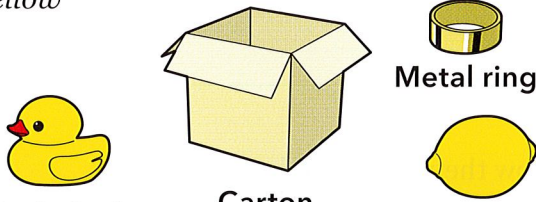
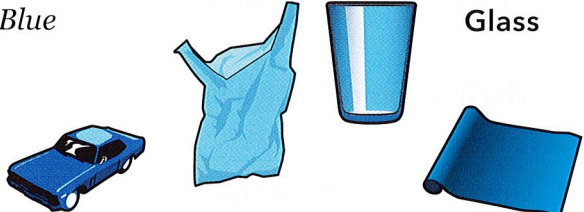

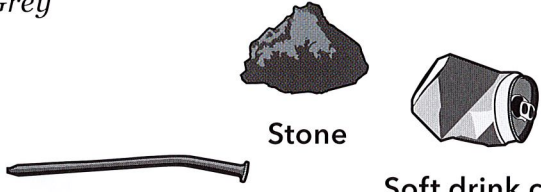
4

.....



4 | *Sorting things out*

Oscar thought the school's workshop was untidy and needed a clean-up. There were many different items that needed sorting. Oscar chose to sort them into four groups according to their colour (see the table below).

| | |
|--|---|
| <p><i>Yellow</i></p>  <p>Bath duck Carton Metal ring Lemon</p> | <p><i>Blue</i></p>  <p>Toy car Plastic bags Glass Wrapping paper</p> |
| <p><i>Green</i></p>  <p>Felt hat Shampoo bottle Basket</p> | <p><i>Grey</i></p>  <p>Nail Stone Soft drink can</p> |

TASK

You can sort in ways different to the one Oscar chose. **Put all the items into groups** according to how they should be left at a recycling station, where they sort according to what material the items are made of.

Use the table below to draw or write, showing the items in categories. Head each part of the table you use with a category heading. The last category already has the heading "Other". You can put items there that do not fit into any of the categories you have made.

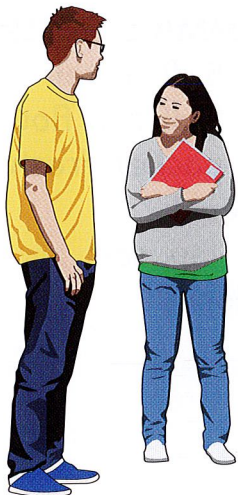
| | |
|-----------------------|-------------------------------------|
| <p>Category:.....</p> | <p>Category:.....</p> |
| <p>Category:.....</p> | <p>Category: <i>Other</i></p> |



5 | *Fruit salad*

Emma and Philip are planning to make fruit salad for a party. Read what Philip and Emma are talking about.

DO YOU THINK WE SHOULD HAVE APPLES IN THE FRUIT SALAD? APPLE GOES BROWN SO QUICKLY WHEN IT'S CUT UP. IT DOESN'T LOOK GOOD.



I'VE HEARD THAT PIECES OF APPLE DON'T GO BROWN SO QUICKLY IF YOU SPRINKLE THEM WITH LEMON JUICE.

You are to plan an experiment that investigates if Emma is right when she says that lemon juice will stop the pieces of apple going brown so quickly. Write your plan so carefully that one of your classmates could carry out the experiment without asking you anything!

.....

.....

.....

.....

.....

.....

.....

.....

.....



Oscar, Emma och Filip hade bakat bröd till en klassfest. Bröden såg olika ut och det berodde på att de hade gjort på olika sätt.

Här är deras recept:

OSCAR'S RECIPE

2.5 dl water
7 dl flour
1 packet of dry yeast
1/2 tsp. salt
Syrup

EMMA'S RECIPE

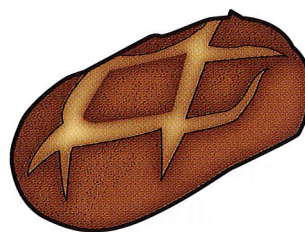
2.5 dl water
6.5 dl rye flour
1 packet fresh yeast
1 tsp. salt
Honey

PHILIP'S RECIPE

2.5 dl water
6 dl flour
3 tsp baking powder
1/2 tsp salt
Sugar

TASK

a. Which two pupils have recipes that are most similar?



and

b. What differences can you see between **the two recipes** you have chosen?

Give three examples!

.....

.....

c. The three pupils might also have done things differently when the bread was in the oven (during baking). In the space below write down what differences in method could have occurred when Oscar, Emma and Philip had their bread in the oven (during baking).

.....

.....

.....

.....

7 | Popcorn

Earlier, people always made popcorn in a saucepan.

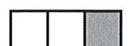
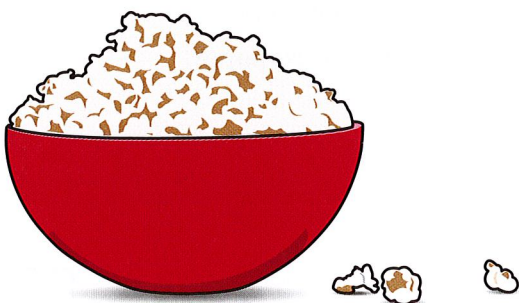
Now we often use a microwave oven. When Julia was planning to pop some corn, she wondered if more popcorn would be edible (not burnt) if she used a microwave oven instead of a saucepan.

She has an equal number of corn kernels in both the saucepan and the microwave oven and continues cooking until the corn has finished popping.

Which questions can Julia use in her investigation so that she gets an answer to her question whether more popcorn will be edible?

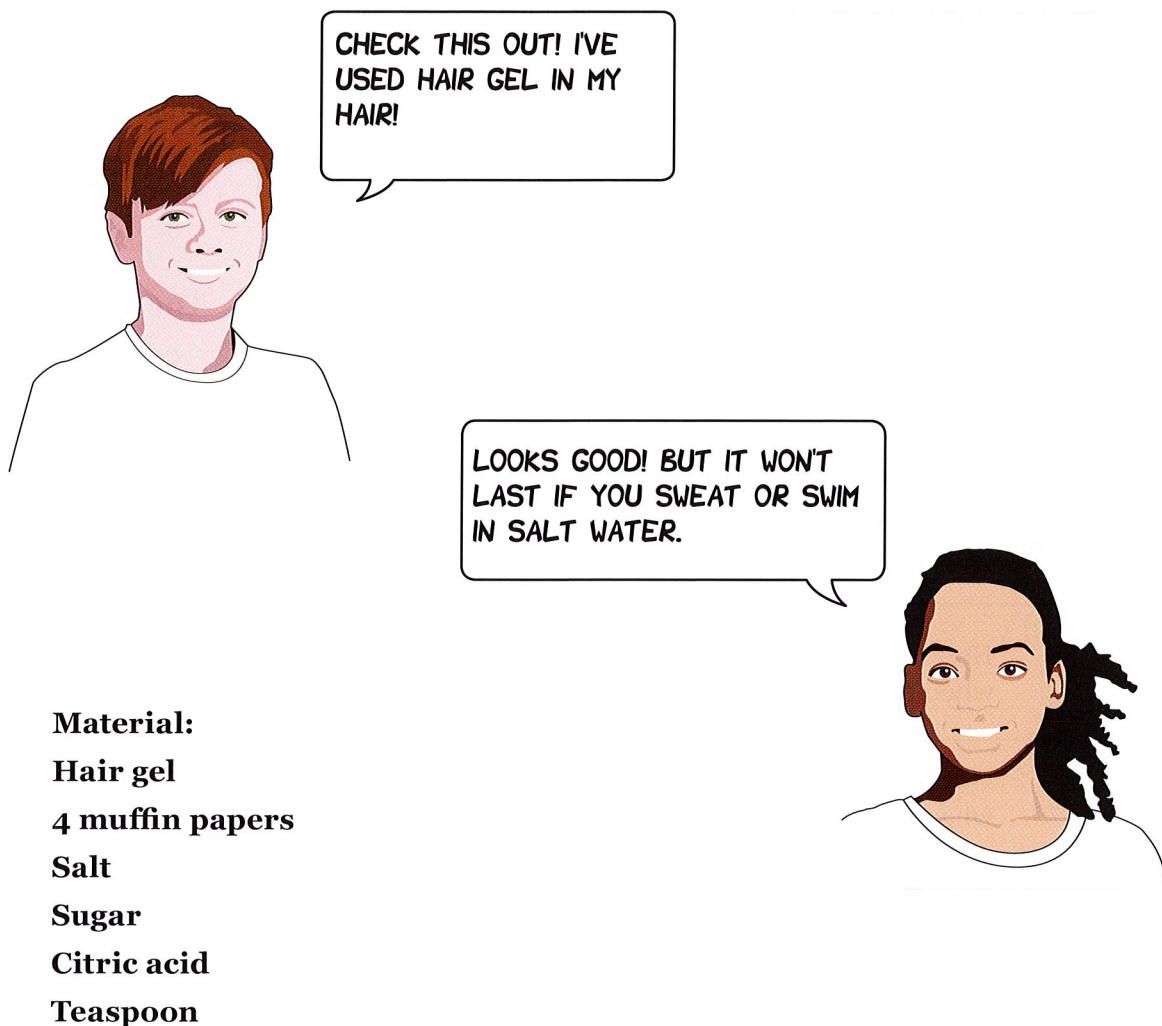
Put a cross in each row under the correct heading.

| Question | The question can be used | The question cannot be used |
|--|-----------------------------|-----------------------------------|
| a) When did the corn start to pop? | <input type="checkbox"/> | <input type="checkbox"/> |
| b) How much time did it take? | <input type="checkbox"/> | <input type="checkbox"/> |
| c) How many burnt corn kernels are there when the corn has finished popping? | <input type="checkbox"/> | <input type="checkbox"/> |
| d) How many popped kernels are there when the corn has finished popping? | <input type="checkbox"/> | <input type="checkbox"/> |
| e) Which packet is biggest? | <input type="checkbox"/> | <input type="checkbox"/> |
| f) What shop was the popcorn bought in? | <input type="checkbox"/> | <input type="checkbox"/> |
| g) Where does the kernel's brown shell go when the corn has been popped? | <input type="checkbox"/> | <input type="checkbox"/> |
| h) Which popcorn tastes best? | <input type="checkbox"/> | <input type="checkbox"/> |
| i) How many un-popped kernels are there when the popping is finished? | <input type="checkbox"/> | <input type="checkbox"/> |



8 | *What happens to hair gel?*

Investigate if Emma's statement is correct by following the plan set out below. You are to start the experiment using salt, but also continue to see if something sweet or sour affects the hair gel.



Method:

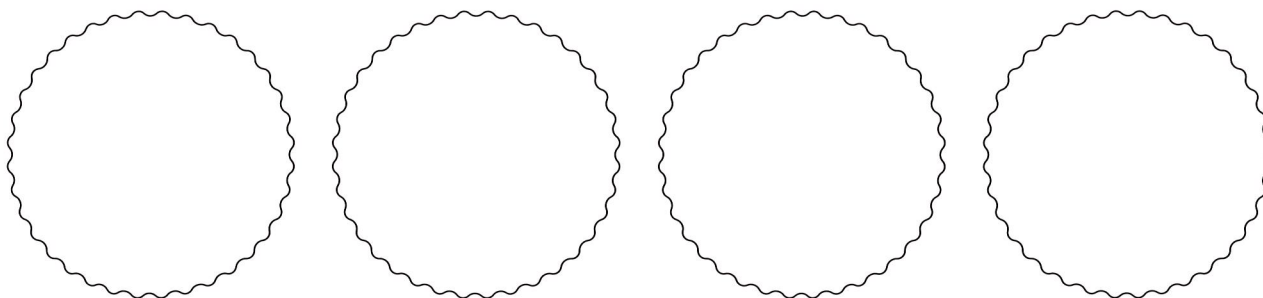
a. Read through points 1 – 5 before you start

1. Squeeze out equal quantities of hair gel (about 1 cm long) into 4 muffin papers.
2. Sprinkle a little ($\frac{1}{2}$ teaspoon) of salt onto the gel in the first paper.
3. Sprinkle a little ($\frac{1}{2}$ teaspoon) of sugar onto the gel in the second paper.
4. Sprinkle a little ($\frac{1}{2}$ teaspoon) of citric acid onto the gel in the third paper.
5. Leave the gel in the fourth paper alone.



b. Document your investigation by drawing a picture of the results of the trials, showing what the gel in the various muffin papers looks like after about half a minute, and also describe with words in what ways the gel has been affected by the salt, sugar and citric acid.

PICTURE: Draw what the gel looked like in the various muffin papers. after you have conducted your experiment:



Describe with WORDS:

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

| |
|--|
| |
|--|

Task 8 executed
(teacher signature)

| | | |
|--|--|--|
| | | |
|--|--|--|



GÖTEBORGS
UNIVERSITET

Institutionen för didaktik och pedagogisk profession



Högskolan
Kristianstad

Sektionen för lärande och miljö



MALMÖ HÖGSKOLA

Fakulteten för lärande och samhälle

Chemistry

Delprov C

Årskurs

6

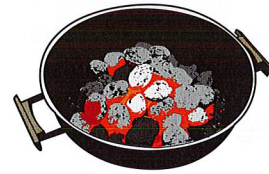
Elevers namn och klass/grupp

The test results summarize your performance on the National test. The mark for the entire term does not have to be in agreement with the test results since the mark is based on all of your performance in the subject and not only on the National test.

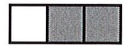
1

When charcoal burns, carbon dioxide is formed.

a) During which of these events is carbon dioxide also formed?
Mark **two** alternatives.



- A jet aeroplane flies
- A nuclear power plant generates electricity
- A wind turbine spins
- A hydropower plant is in operation
- A petrol-driven moped is used



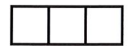
b) Explain how carbon dioxide can be formed when charcoal burns.

.....

.....

.....

.....



2



horse shoe



chain



key



screw

These things are made of iron.

Why is iron a good material for making these things? Give **two** examples.

.....

.....

.....

.....



3

Sam bought a mug of hot coffee on the train. A lid that closes tightly is put on the mug, so that Sam will not spill it when he returns to his seat.

When Sam takes the lid off, he sees that the inside of the lid is covered with a clear, colourless fluid that isn't coffee.

a) What does the clear liquid consist of?

.....

b) How has the clear liquid ended up on the inside of the lid?

.....

.....

.....

.....



4

Maria has three glasses of water. Someone has poured various substances in the glasses: a few drops of lemon, some dishwashing detergent and a few drops of acetic acid.



Maria examines the liquids and finds that one of them is alkaline. Which one? Mark one alternative.

Water with lemon

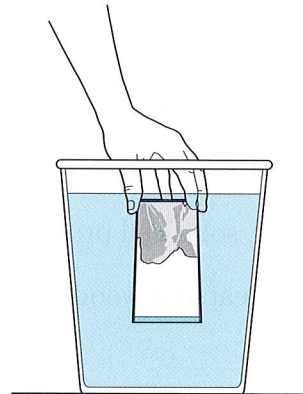
Water with dishwasher detergent

Water with acetic acid



Ellen attaches a paper pad in the bottom of a glass. She turns the glass upside down and lowers it into a bucket of water.

The paper pad is still dry.
Explain why.



.....

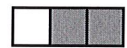
.....

.....

.....

.....

.....



Fill in the words about “air”, so that the sentences are correct.
Write one word on each blank line.

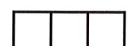
Choose from the words in the box.
One word can be used several times.

oxygen nitrogene carbon dioxide ozone plants animals cold warm

Air is a mixture of gases. In the mixture, most of it is

In second place is and it is formed by

Most of the gases in the air consist of molecules. The molecules move faster inair than in air. As we breathe in a closed room, the amount of in the air is reduced and the amount of is increased.



7

Here is a list of various events.

Mark the events in which more carbon dioxide is formed than is consumed.
Mark two events.

- A tree grows
- Leaves on the ground decay
- Algae grow in the ocean
- A solar cell produces electricity
- Peat and wood chips burns



8

An iron nail thrown away outdoors rusted and finally disappeared altogether.
What has happened to the atoms that the nail was originally composed of?
Mark one alternative.

- The atoms corroded
- The atoms have disappeared altogether
- The atoms are somewhere else
- The atoms have become completely different kinds of atoms



9

More than a century ago, alchemists tried to make gold from iron.
Now we know that it is impossible. Explain why!

.....

.....

.....

.....

.....

.....



Klara has a dry bottle. She attaches a balloon on the bottle so that it fits tightly. Look at figure 1.

She puts the bottle in a large bucket of hot water. When the bottle has been in hot water for a while, the balloon looks like figure 2. Explain why.

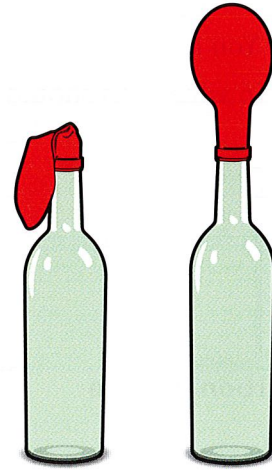


Figure 1

Figure 2

.....

.....

.....

.....

.....

.....

.....

| | | |
|--|--|--|
| | | |
|--|--|--|

A wet swimsuit is placed on a warm, flat piece of rock. It's summer and the sun is shining. No water runs or drips from the swimsuit, but it still dries quickly.

Explain what happens when the wet swimsuit dries.

.....

.....

.....

.....

.....

.....

.....

| | | |
|--|--|--|
| | | |
|--|--|--|

You have a glowing stick of wood and four jars containing different gases.
In which gas should you put the glowing stick of wood for it to catch fire?



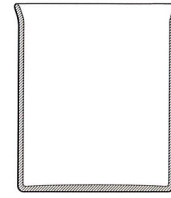
carbon dioxide



nitrogene



neon



oxygen

You should put the wood stick into the jar containing



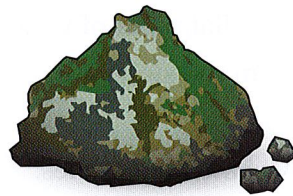
The pictures below shows different raw materials. Write something that can be made from each raw material. Give one example for each raw material.



sand

You can make

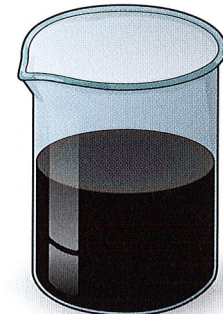
.....
from sand.



copper ore

You can make

.....
from copper ore.



crude oil

You can make

.....
from crude oil.



14

Sam poured a spoonful of salt into a glass of water and stirred until it dissolved.

What does “the salt has dissolved” mean? Explain as carefully as you can.

.....

.....

.....

.....

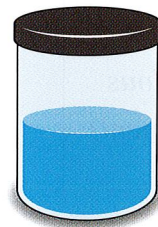
| | | |
|--|--|--|
| | | |
|--|--|--|

15

A jar is filled with ice cubes and a tight lid is put on top. The jar and its contents is weighed. It weighs 630 grams. When all the ice has melted the jar is weighed again.



before



after

a) How much does the jar weigh when the ice has melted. Mark one alternative.

- Much more than 630 grams
- A little more than 630 grams
- Still 630 grams
- A little less than 630 grams
- Much less than 630 gram

b) Explain your choice.

.....

.....

.....









.....

| | | |
|--|--|--|
| | | |
|--|--|--|

Chemicals are labelled with symbols showing in what way they can be dangerous. There are currently both old and new symbols in use.

Write what each symbol (a, b, c and d) means. Choose from the words in the box.

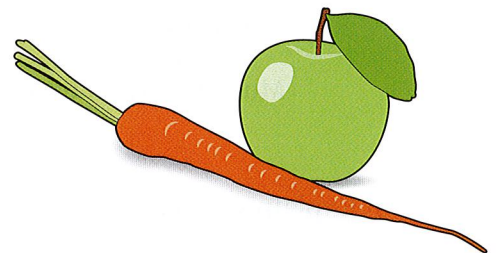
- Harmful and irritating*
- Corrosive*
- Explosive*
- Flammable*
- Environmentally hazardous (harmful to the environment)*

| | <i>Old symbols</i> | <i>New symbols</i> | |
|----|---|--|-------|
| a) |  |  | |
| b) |  |  | |
| c) |  |  | |
| d) |  |  | |



Many people eat carrots and apples.

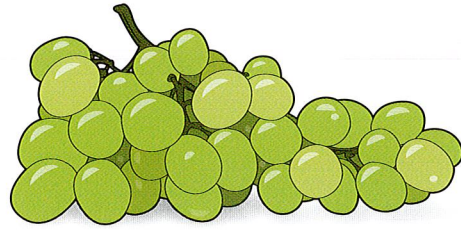
Which of the following statements are most accurate? Mark two alternatives.



- Carrots and apples contain high amounts of sugar
- Carrots and apples contain high amounts of fat
- Carrots and apples contain essential vitamins
- Carrots and apples contain fibre
- Carrots and apples contain high amounts of proteins

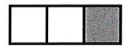


Grapes contain different substances. One of the substances is sugar that is produced when the grapes grow. Amongst other things, sugar consists of carbon atoms.



In which substance were the carbon atoms before they ended up in the sugar in the grapes?

.....



Some fuels will cause the amount of carbon dioxide in the air to increase year by year. There are also fuels that do NOT make it increase.

a) Mark the alternative below that does NOT increase the amount of carbon dioxide in the air each year. Mark one alternative.

Oil

Coal

Firewood

Gasoline

b) Why is it that the amount of carbon dioxide in the atmosphere does NOT increase each year when this fuel is used?

.....

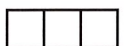
.....

.....

.....

.....

.....





GÖTEBORGS
UNIVERSITET

Institutionen för didaktik och pedagogisk profession



Högskolan
Kristianstad

Sektionen för lärande och miljö



MALMÖ HÖGSKOLA

Fakulteten för lärande och samhälle