

COMPOUNDS (by courtesy of A. Rozkošná)

A) Introducing the Topic

1. Vocabulary

Do you know these words?

element (n)	compound (n)	mixture (n)	equation (n)
chemical formula (adj+n)	result (n)	properties (n)	major use (adj+n)
A reacts with / combines B to form C		to add (v)	to heat (v)

2. Brainstorming. Work in pairs. Answer these questions:

- What is a chemical **compound**? Try to define it. How is it different from an **element**?
- What is a **chemical formula** (e.g. CO₂)? What do the numbers represent?
- What basic types of compounds can you name?
- Give 3 examples of compounds.

What do you know about them? What are their **properties**? What is their **major use**?

- Name one dangerous compound. Why is it dangerous?

3. Now try to match some names of compounds with their formulas:

Note that for *English* names of inorganic compounds, *the order of the electronegative and the electropositive element is different than in Czech.*

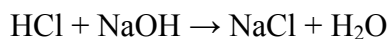
E.g. NaCl - Cz : 1. chlorid 2. sodný,
En : 2. sodium 1. chloride

1. NaCl	a) benzene
2. ZnO	b) methane
3. CO ₂	c) zinc oxide
4. NaOH	d) nitric acid
5. HCl	e) sodium chloride
6. H ₂ SO ₄	f) hydrochloric acid
7. HNO ₃	g) sulphuric acid
8. Na ₂ CO ₃	h) sodium hydroxide
9. CH ₄	i) carbon dioxide
10. C ₆ H ₆	j) sodium carbonate

These formulas are useful for writing **equations**.

Equations are short ways of expressing chemical reactions and their **results**.

Example:



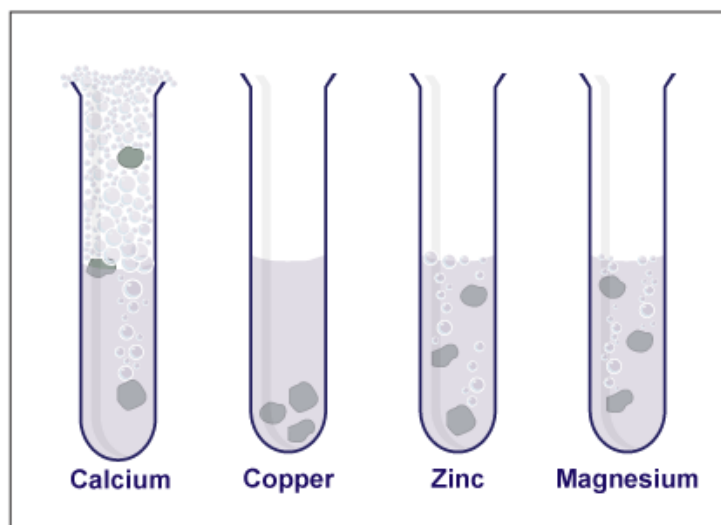
hydrochloric acid reacts with / combines sodium hydroxide to form sodium chloride and water

B) LISTENING: Reactions of Hydrochloric Acid

1. Listen to the passage about reactions of hydrochloric acid and answer these questions:

(From: Bates, Martin and Dudley-Evans, Tony: *Nucleus of General Science*. Longman 1990. Unit 8, Listening Practice 2.)

- What is formed when zinc reacts with hydrochloric acid?
- What are some properties of magnesium chloride?
- What reacts with the acid to form magnesium chloride and hydrogen?
- Which metals do not react with hydrochloric acid?
- What happens if lead is added to the acid and the mixture is heated?
- What is the result of adding tin to the acid without heating?



2. Now try to answer these questions:

- What do you think happens if calcium is added to the acid?
- What do you think happens if copper is added to the acid?

C) Speaking. You are going to read articles from the Wikipedia. Work in small groups and have a short talk about you and the Internet. Answer these questions:

- When did you first use the Internet?
- How often do you use the Internet (hrs/day)? Who uses the Internet the most in your family?
- What are the sites you most often access? Where do you access the Internet?
- Do you use Skype/ Facebook etc.? How often? Do you think that people should put photos of their friends onto the Internet?
- Have you ever chatted on the Internet? Is it dangerous to meet people on the Internet? Would you like to go on a date with someone you meet online?
- Do you think that the Internet safe for children? Why or why not?
- Have you ever bought something using the Internet? Is it better to buy online or to go to a shop? Why?
- Do you use the Internet for fun or education?
- Do you ever play computer games? Which ones? Is it a good or bad habit?
- Have you ever done an online course? How can the Internet help you learn English? Do you think that the Internet might replace libraries?
- Do you access the Internet from your mobile phone? Is it expensive?
- Do you have more than one e-mail address? If yes, then why?
- Can you believe all the information that is published on the Internet?

Adapted from <http://iteslj.org/questions>

D) COMPOUNDS – Reading, Summary writing, Presentations

Adapted from wikipedia.org

Work in small groups. You will read 5 different texts, describing various compounds.

1. Scanning - Scan the text and link the paragraphs with these headings:

- Reactions of ...
- Use of ...
- Production of ...
- Properties of ...

2. Comprehension - Read the text again and answer these questions concerning the compound:

- What is its name and chemical formula?
- What are its properties?
- How is it produced? Can it be found in the nature?
- What chemical reactions does it take part in?
- What are its major uses?

3. Summary – Write a brief summary of the text.

TIPS for a summary:

- State the main point at the start
- Include all the main points of the original; your summary should have the same balance of ideas as the original
- Use simpler language than the original
- Pay attention to connections between the sentences
- Remember you should make the text shorter (about one third or one fourth of the original)
- When you are finished, re-read your summary; check the grammar

Useful phrases to describe the compound:

Its chemical formula is...

It is composed of...

It is produced by... / It may also be manufactured by... / It is produced by three main routes: ...

It takes part in many chemical reactions./ It reacts with ... to form ... / It combines ... to form ... / It can be converted to ... / Its derivatives are

It is used as ... / It is used in ... / Its major use is ... / It has many industrial uses, such as ...

4. Poster – Make a poster, writing and drawing the most important information on a piece of paper. This will be your visual aid.

KISS – keep it short and simple Use BIG LETTERS so that everybody can see them

5. Presentations

Present your compound to the others, enriching the summary with these phrases:

Good morning/afternoon, I'd like to talk about ...

I would like to start with ... I will continue with

That's all. Thank you very much for your attention.

Speak SLOWLY, CLEARLY, LOUDLY

Mind your BODY LANGUAGE – eye contact, clear gestures

E) HOMEWORK: MEASUREMENT – QUANTITY

U **NEPOČITATELNÝCH** (UNCOUNTABLES) se používá:

MUCH – e.g. **much** water, **much** carbon; **How much** water? **How much** carbon?

Stupňování: **much** water – **more** water – **the most** water

LITTLE – e.g. **little** water – **less** water – **the least** water

a little water – trocha vody

much (slightly/far/considerably) less water – mnohem (trochu / mnohem / výrazně) méně vody

U **POČITATELNÝCH** (COUNTABLES) se používá:

MANY – e.g. **many** apples, **many** flasks; **How many** apples? **How many** flasks?

Stupňování: **many** water – **more** water – **the most** water

FEW few flasks – **fewer** flasks – **the fewest**

a few flasks – několik baněk

A. Complete the sentences using **much** / **many**:

1. A torch bulb uses more current than a radio.
2. How liquid does the beaker contain?
3. How laboratories are there on this floor?
4. How electrons does an atom of carbon possess?
5. The British eat too fat and refined sugar.
6. Modern vehicles need less greasing than cars 50 years ago.
7. bacteria are of very great medical importance.
8. How nitrogen does the atmosphere contain?
9. chemical compounds can be manufactured from petroleum.

B. Complete the sentences using **little (málo)** / **few (málo)** / **a little (trocha)** / **a few (několik)**:

1. Very..... people went to see that film.
2. Come on! We've still gottime left to finish this.
3. I've got 20 Euros and coins. That should be enough for tonight.
5. I have time for you today.
6. people came to see the play. It was rather sad.
7. With time and patience, you'll forget her and be happy again.
8. His computer needs cleaning. He takes very care of it.
9. I normally have red wine with my lunch.
10. Jordi gave very reasons for closing down the bar.

Adapted from Alžběta Oreská et al. *English for Chemistry*. Bratislava: STU, 2006.

Week 3 – Vocabulary (Compounds) + Words from the Homework from Week 2

infinitesimal (adj)	nepatrný
to emerge (v)	objevit se, vynořit se
to break down (v)	rozložit se (chemicky)
indestructible (adj)	nezničitelný
indivisible (adj)	nedělitelný
dense (adj)	hustý
to revolve (v)	otáčet se
attraction (n)	přitažlivost
to dilute (v)	ředit
to extract (v)	extrahovat, získat
catalyst (n)	katalyzátor
chemical formula (adj+n)	chemický vzorec
result (n)	výsledek
equation (n)	rovnice
major use (adj+n)	hlavní použití
to add (v)	přidat
to heat (v)	zahřát
A reacts with / combines B to form C	A reaguje s B a vytvoří C
benzene	benzen
methane	metan
zinc oxide	oxid zinečnatý
nitric acid	kyselina dusičná
sodium chloride	chlorid sodný
hydrochloric acid	kyselina chlorovodíková
sulphuric acid	kyselina sírová
sodium hydroxide	hydroxid sodný
carbon dioxide	oxid uhličitý
sodium carbonate	uhličitan sodný
It is produced by three main routes.	Vyrábí se třemi hlavními způsoby.
It takes part in many chemical reactions	Účastní se mnoha chemických reakcí
It can be converted to ...	Může se změnit na ...
derivative (n)	derivát
It is used as ...	Používá se jako ...