3. CLASSIFYING

DISCUSSING LEARNING STYLES

A)Work in small groups. Share your comparisons of questionnaire results from the previous lesson.

B) Then the class will be divided into 3 larger groups. Each group will conduct an internal survey of learning styles that the students apply. The purpose is to produce a classification of learners in the group.

Procedure
1. preparation - think about what questions you want to ask
2. survey – ask the questions, collect answers
3. results – formulate the classification of students according to their learning styles

VOCABULARY

The following are examples of short sentences from specialist chemical texts. Scan the sentences and underline words indicating classification.

An atom consists of three basic components: electrons, protons, and neutrons.
Protein is made up of amino-acids.
Acids and bases can be classified as organic or inorganic.
Metals comprise more than 78% of all known elements.
Heterogeneous solutions are composed of two phases.
Common examples of strong bases include hydroxides of alkali metals.
The atom is composed of a nucleus and an electron cloud around the nucleus.
Large macromolecules constitute the microscopic basis of life.
A water molecule is made up of two hydrogen atoms and one oxygen atom.
Silicon is classified as semi-metal.
A suspension consists of large particles mixed or suspended in a solution.
The elements can be divided into metals and non-metals.
The elements in a vertical column of the Periodic Table constitute a group or family.
The periodic table consists of two major divisions: the metals and the non-metals.
The f-block comprises the lanthanides ad actinides
Typical metals include the elements Copper, Tin, and Lead.
Each element is composed of a unique number of protons.
Mixtures can be divided into homogeneous and heterogeneous.

Source: corpus prepared for JAC01, http://ske.fi.muni.cz

Now answer these questions:

1. The word *examples* is often used with a particular verb – which one?
2. Which synonym can replace the verb in *solutions consist of* ?
3. What prepositions are used with *classify* and *divide* ?
4. What is the difference between *made of* and *made up of* ?
5. The words *constitute* and *represent* mean the same. Is it true? Look at the sentences.

READING

A) You are going to read a text about matter. First, read only the title and the first sentence of each paragraph.

What is the purpose of the <u>whole</u> text? Select from the answers below.

A) to define everything around us
B) to explain what solids and its forms are
C) to describe how matter can be categorized
D) to describe how people use things in different ways

The Nature of Matter

1	Everything around us consists of matter: this paper, your body, the air you breathe, and the water you drink. Matter is anything that has weight or mass and takes up space.
2	All matter may be classified as either solid, liquid, or gas. Solids are firm and have a definite form. Rubber, wood, glass, iron, cotton, and sand are all classified as solids. A considerable force would be needed to change the shape or volume of an iron bar, for example, because the atoms or molecules of a solid are densely packed and have very little freedom of movement.
3	Solids may be further divided into two classes: crystalline and amorphous. Rocks, wood, paper, and cotton are crystalline solids. Crystalline solids are made up of atoms arranged in a definite pattern. When these solids are heated, they change to a liquid, known as melting, is sharp and clear. Amorphous substances include rubber, glass, and sulphur. In these substances, the pattern of atoms is not orderly, and when heated, they gradually soften.
4	Liquids, on the other hand, are not rigid. If water, milk, or oil is poured on a table, it will flow all over the surface. The atoms or molecules of liquids attract each other and thereby enable liquids to flow. But these atoms are loosely structured and do not keep their shape. Therefore a liquid will take the shape of any container in which it is poured. However, liquids have a definite volume: a quart of milk cannot fit in a pint container.
5	Gases, such as air, oxygen, and carbon dioxide, have no fixed shape or volume of their own. They diffuse or spread out to fill any container. The atoms or molecules of gases are widely spaced and move very rapidly. They either compress or expand to adapt to any area.
6	Everything we know is made of matter in solid, liquid or gaseous form.

Zimmerrman, Fran. *English for Science*.New Jersey 1989

matter (n) – hmota
solid (n/adj) - pevná látka, pevný
liquid (n/adj) - kapalina, kapalný
gas (n), gaseous /adj.) – plyn, plynný
weight / mass (n) - hmotnost, váha
shape and volume (n) – tvar a objem
movement / motion (n) - pohyb

firm / rigid (adj) – pevný, neohebný, tuhý
definite form (adj+n) – určitá (přesně daná) forma
considerable force (adj+n) – značná síla
gradually (adv) – postupně
therefore / thereby (adv) – a tak, a proto, a tudíž
heat the substance (n) – zahřát látku
orderly (adj) - uspořádaný

oxygen (n) – kyslík
iron (n)- železo
sulphur (n) – síra
carbon dioxide (adj+n) - oxid uhličitý
densely packed atoms - hustě natěsnané atomy
loosely structured - ve volné struktuře
arranged in a definite pattern – uspořádané do určitého vzorce
to pour (v) – lít
flow all over the surface - rozlévat se po povrchu
attract each other – přitahovat se navzájem
container (n) – nádoba
diffuse / spread out (v) – rozpínat se
compress or expand (v) – stlačit se nebo se roztahovat
quart - 2 pints, 1.14 of a Br.litre/ 0.94 of a US litre

B) Use the information from the text to draw a diagram. In pairs describe the information from your diagram. Use the verbs for classifying (e.g. comprise, be made up of, consist of,…)**.**

LISTENING

Watch the video and fill in the gaps.

Available at http://highered.mcgraw-hill.com/sites/0072396814/student_view0/animations_center.html#

or http://www.youtube.com/watch?v=s-KvoVzukHo

States of Matter

The states of ……..…… are gas, liquid and solid. Gasses assume the shape and …… of their container. Particles of a gas are separated from each other, move in straight lines, and in a completely random manner. They change direction only when they collide with each other or the ……... .

Liquids have a ……. volume, and assume the shape of their containers. The particles of a liquid are closely spaced, and so their motion is still random, but much more ……. The particles slip past, and collide with, near-neighbors.

Solids have a definite ……. and volume. Particles of solids are in ……. positions, and collide only with near-neighbors.

to assume the shape - přebírat tvar
particles collide with each other (n) – částice se srážejí
separated (adj) oddělený
in a completely random manner - zcela náhodně
slip past (v) – míjet

PRESENTATIONS

You have some experience with giving presentations. Have a discussion with a partner and then formulate a few pieces of advice how to do it – write guidelines.

1. …
2. …
3. …
4. …
5. …
6. …

Work in small groups.

Each group will get a text describing something from the area of chemistry. Read it and underline all the things that are classified. Then draw a slide with a diagram.
Present your diagram to the others, use the vocabulary that you have learnt today.
(e.g. *may be divided into four parts, can be classified as…)*

Useful phrases:
1. Good morning/ afternoon/ Hello, everyone.
2. My name is ... and this is...I would like to talk about…/ We would like to show you.../
   We will take a look at...
3. First of all…
   As you can see on the chart/ graph/ poster...
   Finally…
4. That's all. Our presentation is over. Thank you for your attention.
   Thank you for your time and attention.

Don't forget to let your partner speak:
And now Martin will tell you more. / will continue. / And now I'll pass over to Paul.

Feedback
During presentations listen carefully to the speakers and try to get ideas about their strong and weak points. After all presentations finish, you will give each other feedback, i.e. a comment which appreciates or suggests changes in the speeches.

What aspects of presentations can you evaluate?

HOMEWORK
1. Do some vocabulary research and fill in the table with the right words for describing changing states of matter.

Changing state of matter	**Verb**	**Noun**
1. liquid to gas	*to evaporate*	*evaporation*
2. gas to liquid		
3.		melting / liquefaction
4.		solidification
5.	to sublimate	
6. gas to solid		

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

2. Change the sentences into passive voice

1. We can classify matter as solid, liquid & gas.
Matter …….. as solid, liquid & gas. (3 words)

2. You would need a considerable force to change the shape of an iron bar.
A considerable force ……. to change the shape of an iron bar. (3 words)

3. When you heat solids, they melt.
When ……., they melt. (3 words)

4. If we pour water on the table, it will flow all over the surface.
If …… on the table, it will flow all over the surface. (3 words)

3. Revise the tenses: present, past, present perfect

- Simple and continuous forms
- Questions, negatives
- Passives in simple forms

Where to revise grammar - for example

http://eldum.phil.muni.cz/mod/resource/view.php?id=334
http://www.ego4u.com/en/cram-up/grammar
http://www.englisch-hilfen.de/en/inhalt_grammar.htm
http://www.nonstopenglish.com/allexercises/

or textbooks that you are used to

There will be a grammar test on tenses in the following week