«Битва титанов. Водород и кислород.»

учитель:
Искакова Асия Агзамовна,
учитель химии
Учреждение: КГУ ШГ № 44
маты, Казахстан.

Цель урока:

1. Систематизировать знания о свойствах водорода и кислорода.
2. Вспомнить основные классы соединений веществ.
3. Закрепить умения составлять формулы солей и уравнения химических реакций, определять типы химических реакций.

Lessons objectives

- Systematize knowledge about the properties of hydrogen and oxygen.
- Remember the main classes of compounds of substances.
- To fasten the ability to make up formulas of salts and chemical reaction equations, to determine the types of chemical reactions.

Битва титанов.
Водород.
Кислород.

“Titans’ fight. Hydrogen and oxygen.”

Hydrogen

Oxygen

Lesson plan:

- 1. Let’s start
- 2. Presentations
- 3. Properties.
- 4. Who is who?
- 5. Problem solving
- 6 True/False Questions.
- 7. «Film»
- 8. Test
- 9. Fantastic experiments

Действие № 1

Водород и кислород

Химическая разминка

- Atomic number- [1]
- Atomic relative mass – [1]
- Period – [1]
- Group - [1]
- Number of protons- [1]
- Number of neutrons – [1]
- Number of electrons – [1]
- Number of levels - [1]
- Electronic structure – [1]
- Electronic configuration – [1]
- Metal, non-metal or metalloid - [1]
- Total- [12]

Химический ринг

Действие № 2

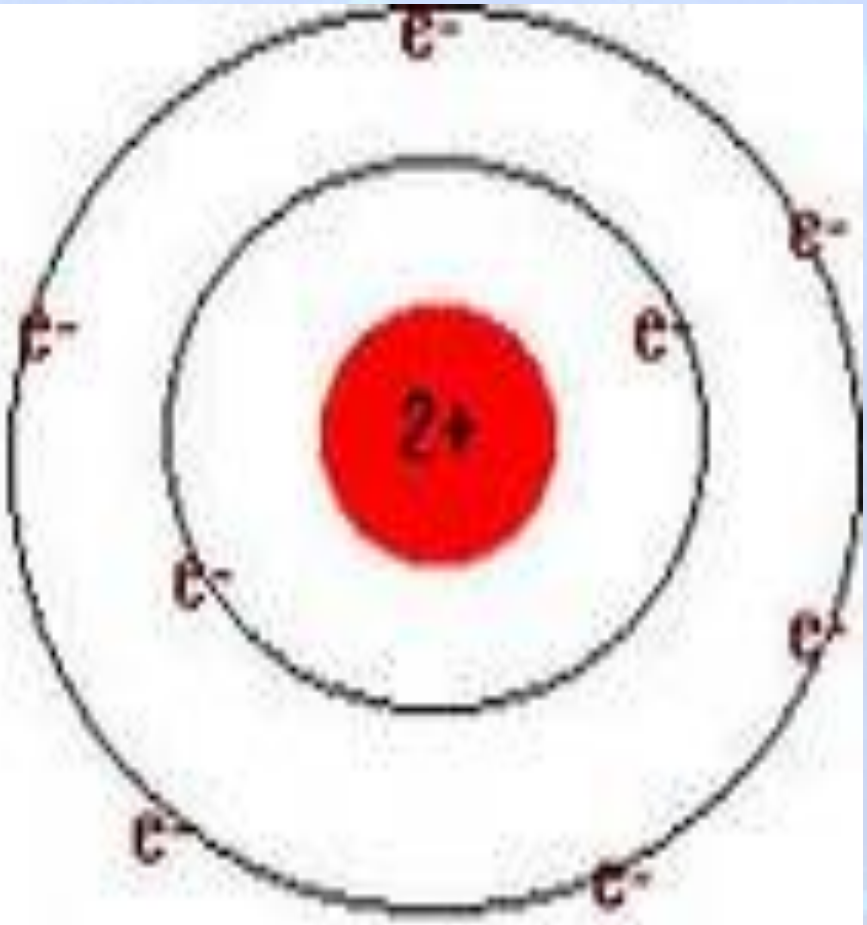
Презентации

2 stage

Presentations

Hydrogen and oxygen

Hydrogen
Valency = 1



Oxygen
Valency = 2

H

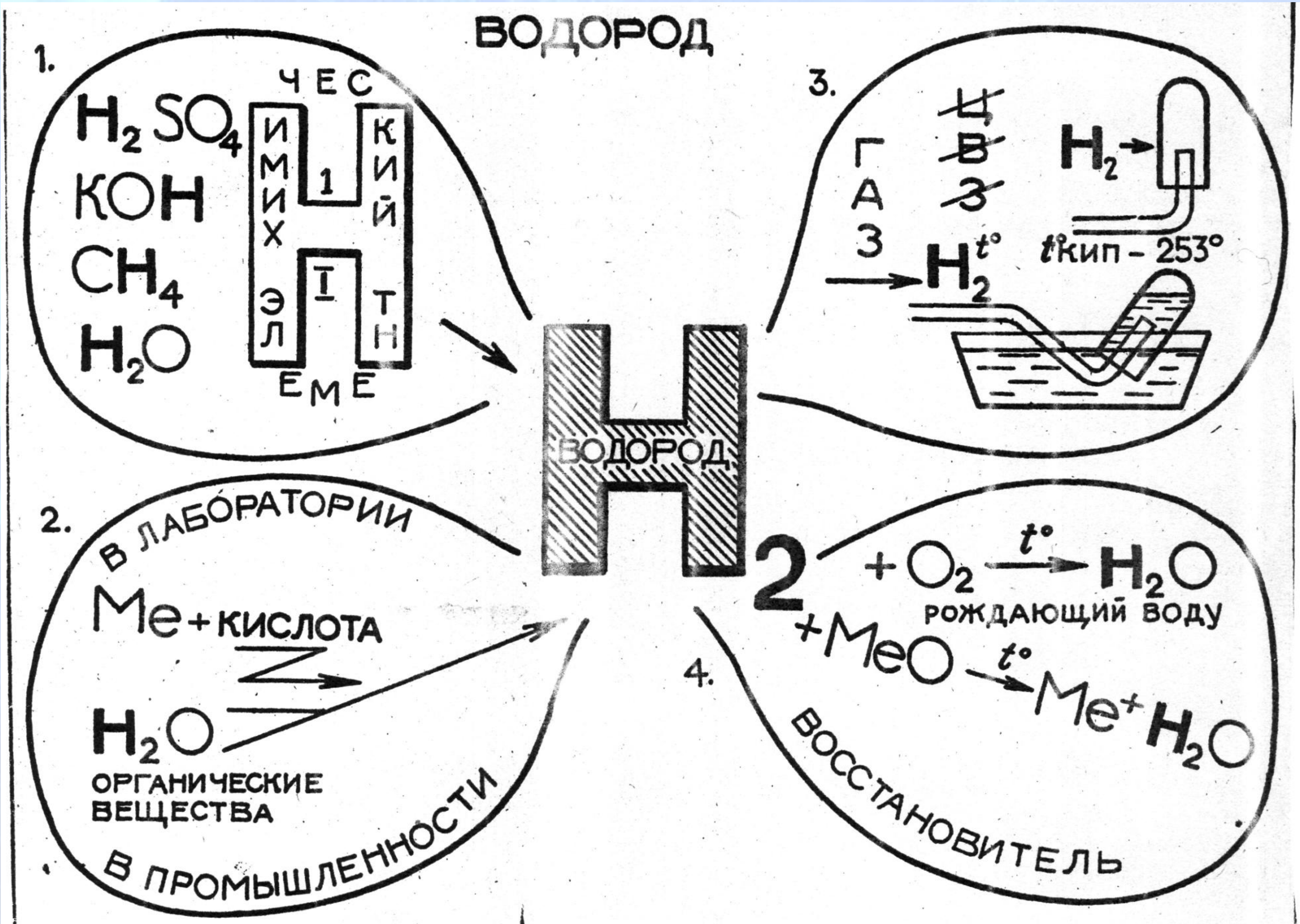
Hydrogen Princess

#1	Non-metal	1.01 AMU

Hydrogen may be the lightest element, but her fiery kingdom holds three fourths of the universe by weight. Who would have thought that just one proton and electron could take over the world?

In stars, H atoms fuse to form Helium and release energy. Bring Helium from your deck to your hand.

Element


ВОДОРОД
1.
H_2SO_4
KOH
CH_4
H_2O
ЧЕС
ИМИХ
ЭЛ
ЕМЕ
КИЙ
ТН
1
I
ВОДОРОД
H_2
2.
В ЛАБОРАТОРИИ
Me + КИСЛОТА
H_2O
ОРГАНИЧЕСКИЕ ВЕЩЕСТВА
В ПРОМЫШЛЕННОСТИ
3.
ГАЗ
Ц В З
H_2
$t°$ H_2
$t°$кип - 253°
4.
$+O_2 \xrightarrow{t°} H_2O$
РОЖДАЮЩИЙ ВОДУ
$+MeO \xrightarrow{t°} Me + H_2O$
ВОССТАНОВИТЕЛЬ

Oxygen Life-Giver

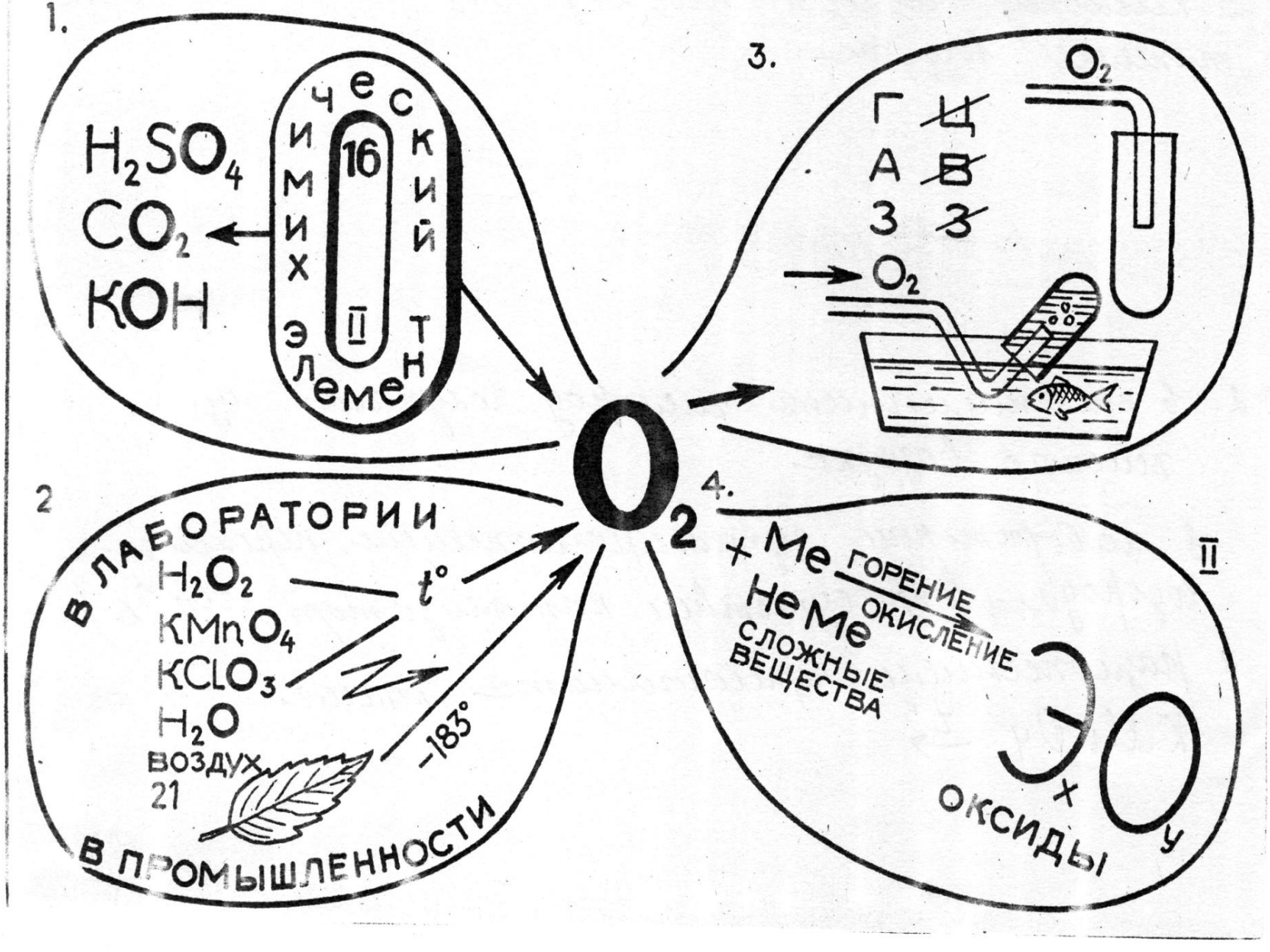
#8	Non-metal	16.00 AMU

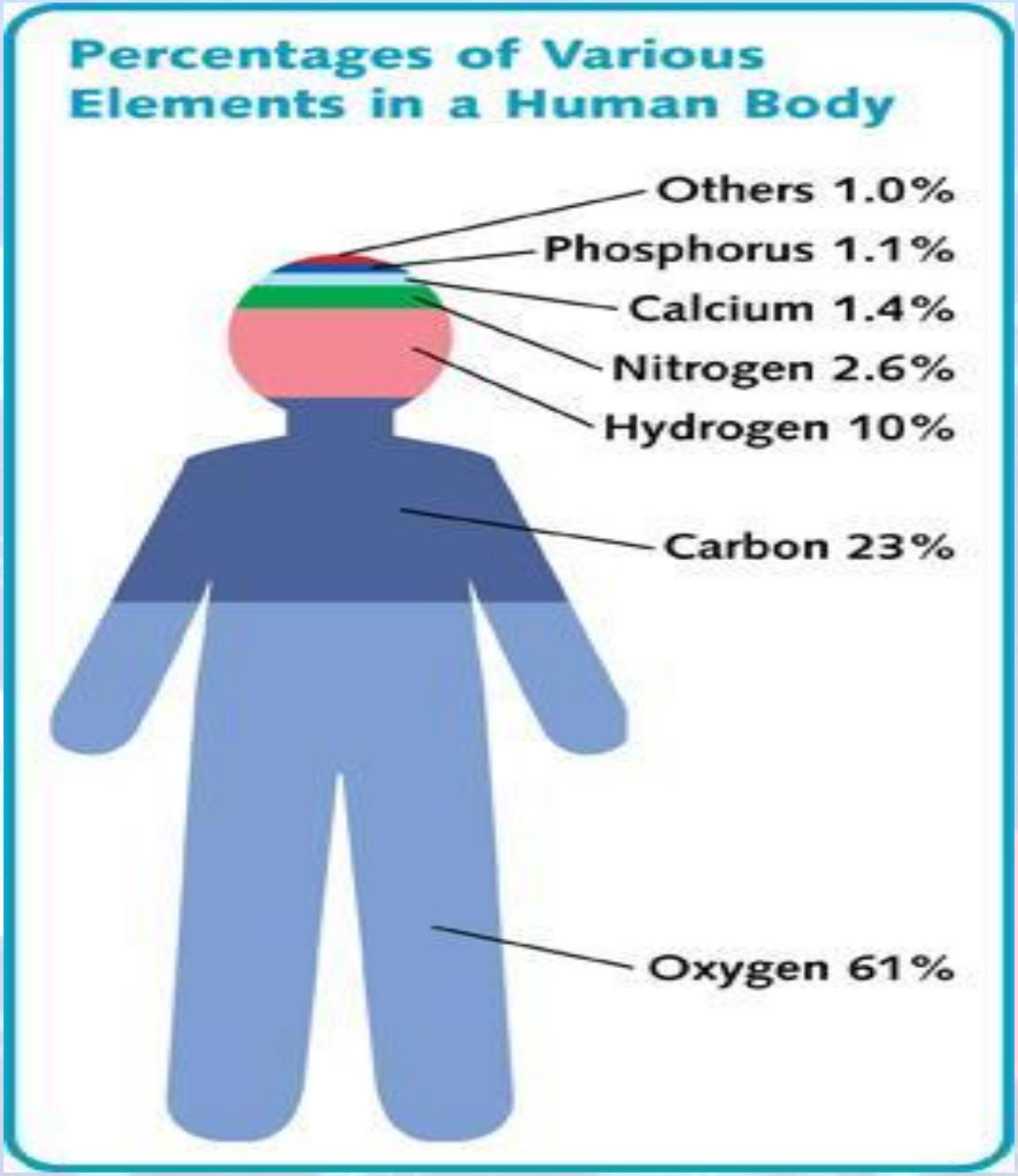
With his staff of energy, Oxygen breathes life into plants and animals. He may look peaceful, but his fiery powers of combustion are legendary!

If angered, Oxygen rusts a metal element on the field and sends it to the toxic waste pile.

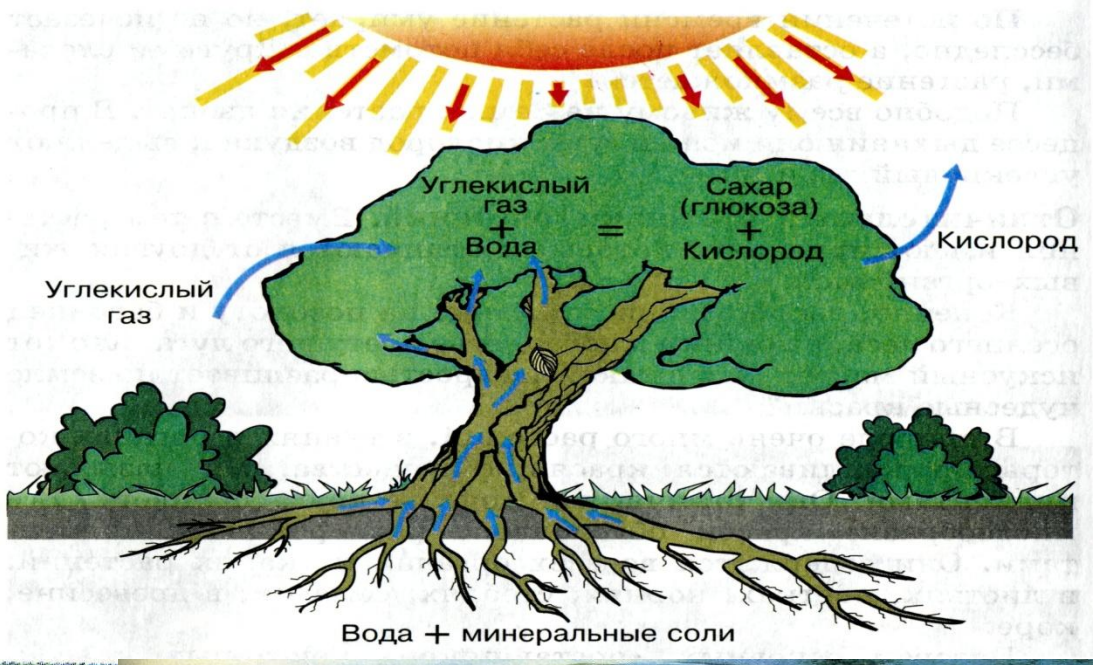
Element

КИСЛОРОД. ОКСИДЫ.




Percentages of Various Elements in a Human Body
Others 1.0%
Phosphorus 1.1%
Calcium 1.4%
Nitrogen 2.6%
Hydrogen 10%
Carbon 23%
Oxygen 61%


H_2
O_2
Водород
Электролит
Кислород
Электролит


Углекислый газ + Вода = Сахар (глюкоза) + Кислород
Кислород
Углекислый газ
Вода + минеральные соли


47%
O
68%
86%
CO_2
O_2
CO_2
O_2
15,999

Действие № 3

Свойства

3 stage

Properties

Property	Hydrogen	Oxygen
Valency		
Formula		O_2
Colorless	Yes	
Odorless		
Tasteless		
Diatomic gas		
Heavier than air	No	Yes
Slightly soluble in water		

4 stage

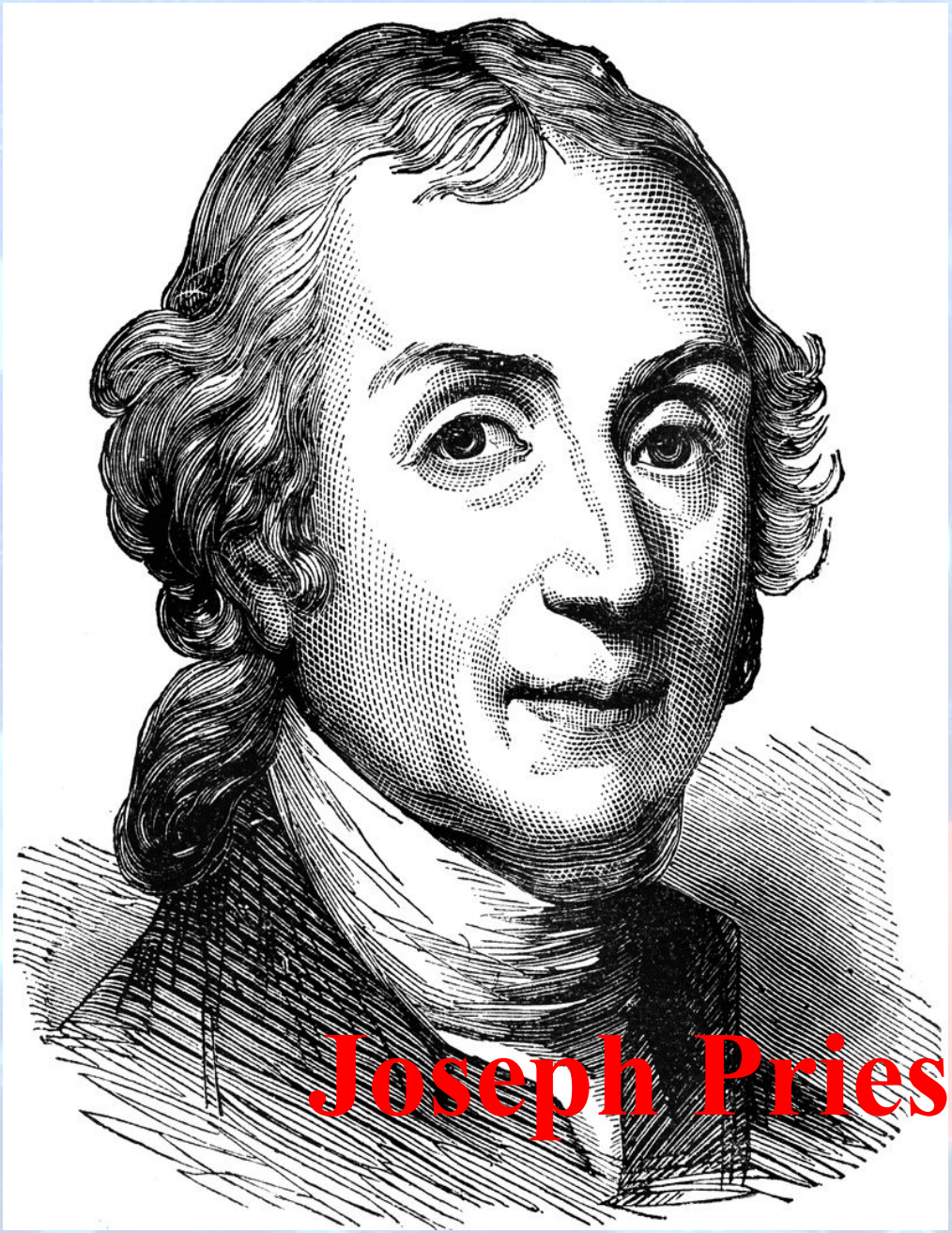
Who is who?

What is the name of famous scientist, who opened the element?

Who opened hydrogen?

Henry Cavendish

Who opened oxygen?



Joseph Priestley

5 stage

Problem solving

Find a mass fraction of oxygen in carbonic acid

Find a mass fraction of hydrogen in sulfuric acid

6 stage

1.Water is known by two names

A) dihydrogen oxide

B) hydrogen hydroxide True False

2.Hydrogen → atoms contain

1 proton and 1 electron True False

3. Oxygen → atoms contain 8 protons and 16 electrons True False

7 stage

- **Фильм!**
- **Film !**

Действие № 8

Stage № 8

TEST !

Test

1. Choose the formula of an mercury(II) oxide :

A) Na_2O

B) HgO

C) CaO

D) Al_2O_3

E) CuO

Test

2. Choose the formula of an hydrochloric acid:

A) Na_2O

B) HCl

C) $CaCO_3$

D) H_2SO_4

E) FeS

Test

3. Choose the formula of a phosphoric acid:

A) HCl

B) HNO_3

C) H_2CO_3

D) HF

E) H_3PO_4

Test

4. Choose the formula of a magnesium permanganate:

A) $MgCl_2$

B) $KMnO_4$

C) $MnCO_3$

D) MnF_2

E) $Mn(NO_3)_2$

Test

5. Choose the formula of the substance which doesn't belong to the logical group:

A) H_2
B) N_2
C) Cl_2
D) O_3
E) Br_2

True results

- 1.B
- 2. B
- 3.E
- 4 B.
- 5.D

Действие № 9

Итоги урока

РЕФЛЕКСИЯ.

1. Я узнал много нового и интересного.
2. На уроке мне постоянно приходилось работать.
3. На все возникшие в ходе урока вопросы я получил ответы.
4. Мне это пригодится в повседневной жизни.
5. Считаю, что работал добросовестно и достиг цели урока.

REFLECTION

Write your opinion about the lesson:

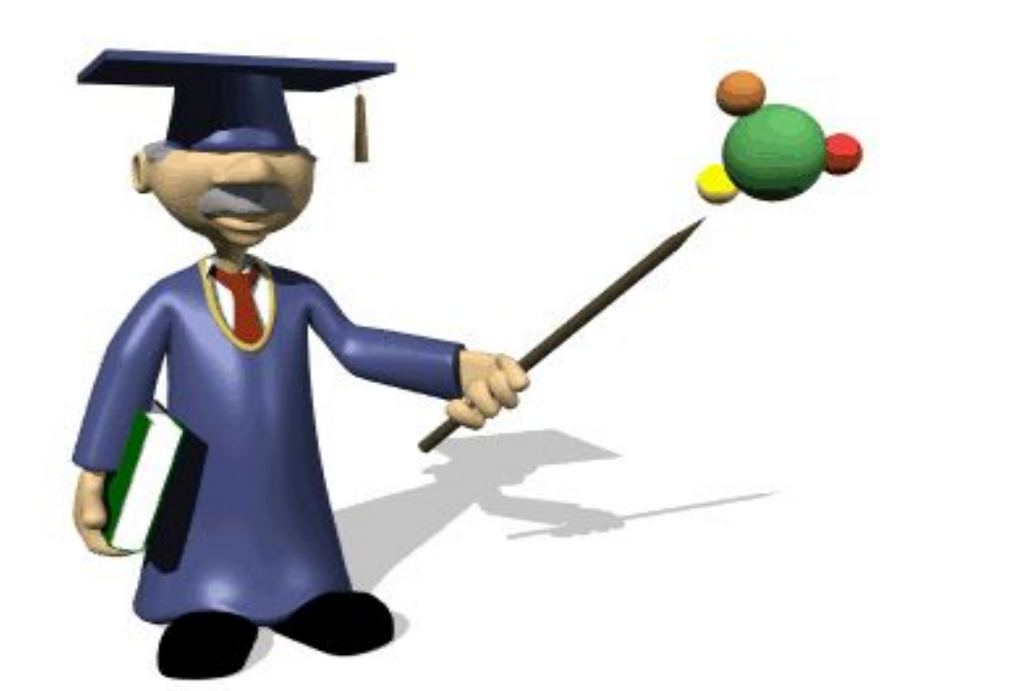
It was interesting _____

It was important _____

It was needs _____

Homework

- **Read book.**
- **§ 14. ex.6,7**



СПАСИБО ЗА ВАШ УРОК!

Thanks for your lesson!