

1 The Origin of Life

1 Key words (viz. slovníček)

READING

3 Read the text and check your answers.

- 1 a
- 2 small molecules and macromolecules
- 3 A cell is a basic unit of life.
- 4 a person/human being

VOCABULARY

4 Match the words from the text.

- 1 e
- 2 a
- 3 b
- 4 d
- 5 c

GRAMMAR

5 Circle the correct form of the verbs in brackets.

- 1 is
- 2 exist
- 3 does
- 4 Are
- 5 think

6 Complete the sentences with the correct form of the verbs in brackets.

- 1 results
- 2 is not
- 3 are not
- 4 has
- 5 does not have
- 6 do not form

7 Fill in the gaps with these words.

- 1 studies
- 2 are
- 3 aren't
- 4 study
- 5 has
- 6 and

EXTENSION

8 Complete this task.

- nucleus - jádro
- proton - částice v jádře
- neutron - částice v jádře
- electron - částice obíhající jádro
- orbit - oběžná trasa

C12 - has 12 protons and 12 electrons, C13 - has 13 protons and 13 electrons - both are stable

C14 - unstable or radioactive

2 The Cosmic Web

1 Key words (viz. slovníček)

READING

3 Read the list of topics (a-f) and match them with the paragraphs (1-5). There is one extra topic.

- | | |
|---|---|
| 1 | e |
| 2 | f |
| 3 | b |
| 4 | a |
| 5 | d |

VOCABULARY

4 Look at the words on the left in the text. Then, match them with the correct meaning.

Example: 1-c

- | | |
|---|---|
| 2 | a |
| 3 | e |
| 4 | b |
| 5 | d |
| 6 | g |
| 7 | f |

GRAMMAR

5 Complete the following questions with a/an/the. Put an 'x' when no word is necessary.

- | | |
|---|---|
| 1 | a |
| 2 | a (if we talked about our universe we could use THE but then we would have to use the past - so better to say how does A universe begin - in general) |
| 3 | x |
| 4 | x |
| 5 | an |
| 6 | an |
| 7 | x |

6 Complete the following sentences with these words.

- | | |
|---|----------|
| 1 | unite |
| 2 | moves |
| 3 | become |
| 4 | makes up |
| 5 | comes |

7 Correct the form of the verbs when necessary.

- | | |
|---|--------|
| 1 | use |
| 2 | ok |
| 3 | stops |
| 4 | ok |
| 5 | appear |

EXTENSION

8 Try this.

lung, heart

3 From Inert Matter to Intelligent Life

1 Key words (viz. slovníček)

READING

3 Now read the article and put the following events in chronological order.

- 1 e
- 2 c
- 3 b
- 4 f
- 5 d
- 6 a

VOCABULARY

3 Complete the following sentences using words from the text.

- 1 solar system
- 2 sun
- 3 inert
- 4 unicellular
- 5 DNA

GRAMMAR

5 Complete the following questions with:

- 1 How
- 2 Where
- 3 What
- 4 When
- 5 What

6 Fill in the gaps with:

- 1 Is there
- 2 Are there
- 3 there isn't
- 4 There are
- 5 There are

6 Fill in the blanks with:

- 1 has
- 2 there is
- 3 have
- 4 There is
- 5 There are

4 The Human Organism as a Complex Open System

1 Key words (viz. slovníček)

READING

2 While you read, look for other words that are similar in your language.

type, atom, molecule, macromolecule, element, system, structure, gene, energy, information, organise, activity, automatic, nerve, hemisphere

TOPICS - Science

3 Circle the correct answer. There is only one possible answer.

- 1 b
- 2 a
- 3 a
- 4 a
- 5 c

VOCABULARY

4 Work in pairs. Associate the words in column A with words in column B.

- 2 e
- 3 b
- 4 d
- 5 f
- 6 a

GRAMMAR

5 Use these words to write sentences.

- 1 People learn from other people.
- 2 Awareness determines our position in the scale of evolution.
- 3 The human body is a complex open system.
- 4 All the living systems have the same characteristics.

6 Complete the following questions with the missing words.

- 1 Does
- 2 Are
- 3 can
- 4 Do
- 5 How many

EXTENSION

7 Try this. You can observe the mechanics of your thought. Work in groups to complete the task.

- 1 b
- 2 d
- 3 g
- 4 h
- 5 c
- 6 f
- 7 e
- 8 a

Consolidation 1

VOCABULARY

1 Complete the clues to fill in the crossword puzzle.

ACROSS

- 1 energy
- 2 automatic
- 3 complex
- 4 living
- 5 reasoning

DOWN

- 1 DNA
- 2 rhythm
- 3 macro
- 4 cells
- 5 carbon

TOPICS - Science

GRAMMAR

2 Fill in the blanks with the correct form of the verbs in brackets. Where there is no bracket, use one of the words below.

- | | | | |
|---|--------------|----|------------|
| 1 | There are | 9 | expands |
| 2 | there is | 10 | explains |
| 3 | see | 11 | multiplies |
| 4 | show | 12 | believe |
| 5 | do | 13 | have |
| 6 | do | 14 | Are |
| 7 | shows | 15 | is |
| 8 | demonstrates | 16 | accept |

3 Fill in the blanks with one of the questions below.

- 1 c
- 2 e
- 3 a
- 4 d
- 5 f
- 6 b

TRANSLATE

7 Translate the following sentences into your language.

- 1 V našem těle jsou miliony buněk.
- 2 V bakterii je jen jedna buňka.
- 3 Existuje absolutní teorie o životě?

COMPLETE A RULE

8 To express existence in English we use

- 1 there is
- 2 there are

5 Brain and Knowledge

1 Key words (viz. slovníček)

READING

2 Read these sentences and choose the closest meaning to the underlined word.

- 1 b
- 2 b
- 3 a
- 4 b

VOCABULARY

3 Find the nouns of these verbs in the text.

- 1 analyse - analysis
- 2 connect - connection
- 3 learn - learning
- 4 know - knowledge

4 Fill in the blanks with the proper form of the words in brackets.

- 1 analysis and synthesis
- 2 connection
- 3 division
- 4 Learning

GRAMMAR

5 Complete the following sentences with the right form of the verbs in brackets.

- 1 studied
- 2 presented
- 3 observed
- 4 discovered
- 5 received

6 Fill in the blanks with: in, and, between

- 1 in
- 2 between - and
- 3 In
- 4 Between - and

6 Composition of Matter

1 Key words (viz. slovníček)

READING

4 Read the list of topics (a-g) and match them with the paragraphs (1-6). There is one extra topic.

- | | |
|---|---|
| a | 6 |
| b | 3 |
| c | 1 |
| d | 5 |
| e | - |
| f | 2 |
| g | 4 |

VOCABULARY

5 Match the verbs on the left with their meanings on the right.

- | | |
|---|---|
| 1 | b |
| 2 | d |
| 3 | a |
| 4 | c |

GRAMMAR

6 Complete the following questions with the missing words.

- 1 was
- 2 was
- 3 did
- 4 Did
- 5 Were

7 Fill in the blanks using these linking words and expressions.

- 1 When
- 2 but
- 3 One day
- 4 and
- 5 Then
- 6 suddenly
- 7 in the end

TOPICS - Science

8 Read again about Einstein and underline the verbs in the past. Write their infinitive form.

liked - like
showed - show
made - make
increased - increase
moved - move
finished - finish
became - become
published - publish
succeeded - succeed
received - receive
died - die

EXTENSION

9 First match the scientists on the left with their corresponding contribution on the right.

1 b
2 c
3 a

7 Chemical Bonds

1 Key words (viz. slovníček)

READING

3 Read the text and check your answers..

1 c
2 a
3 a
4 b

VOCABULARY

4 Match the adjectives on the left with the nouns on the right.

1 b
2 c
3 d
4 a
5 e

GRAMMAR

5 Fill in the blanks with:

1 An
2 some
3 A
4 a lot of
5 some/a lot of
6 any

6 Fill in the blanks with:

1 On
2 in
3 in
4 in
5 on

8 The Electric Charge

1 Key words (viz. slovníček)

READING

3 Match the phrases (a-e) with the gaps in the text (1-5).

- | | |
|---|---|
| 1 | c |
| 2 | d |
| 3 | a |
| 4 | b |
| 5 | e |

VOCABULARY

4 The following words are adverbs. Look for their adjective form in the text.

- | | |
|---|----------|
| 1 | free |
| 2 | violent |
| 3 | electric |
| 4 | chemical |

5 Complete these sentences with one of the words in Ex.4.

- | | |
|---|--------------|
| 1 | Positively |
| 2 | electrically |
| 3 | freely |
| 4 | an electric |
| 5 | chemically |

GRAMMAR

6 Read the following information about electricians' safety at work.

- | | |
|---|--------------|
| 1 | have an |
| 2 | be afraid |
| 3 | respect |
| 4 | work outside |

7 Fill in the blanks with:

- | | |
|---|---------------|
| 1 | can't |
| 2 | have to |
| 3 | don't have to |
| 4 | can |

Consolidation 2

VOCABULARY

1 Look for the hidden words in the word square and use them to fill in the blanks.

- | | |
|----|-------------|
| 1 | mass |
| 2 | capacity |
| 3 | bonds |
| 4 | cellulose |
| 5 | Lightning |
| 6 | collide |
| 7 | electricity |
| 8 | attraction |
| 9 | states |
| 10 | ionosphere |

GRAMMAR

2 Read the following passage about the human brain and put the verbs in brackets into the right form.

1	is	13	stores
2	places	14	reaches
3	wrote	15	convert
4	was	16	enters
5	said	17	goes
6	was	18	connects
7	associated	19	is
8	had	20	is
9	believed	21	have
10	occupied	22	accumulate
11	accept	23	have
12	explains		

3 Now complete the following questions with the correct form of the verbs in brackets and write the answers.

- 1 What was the brain according to Pythagoras? - The brain was the organ of mind.
- 2 How did Herophilus describe the brain? - He said the brain was the central part of the nervous system.
- 3 What was analysis, reason and memory according to medieval thinkers? - Analysis, reason and memory occupied three different areas that were interconnected.

4 Arrange the scrambled words to make up sentences.

- 1 There are uncountable chemical bonds.
- 2 The electric charge is also called electricity.
- 3 Copper is a good conductor.
- 4 Like charges repel and unlike charges attract.
- 5 The right hemisphere holds the power of synthesis.

TRANSLATE

5 Translate the questions below into your language.

- 1 Co byl podle Pythagora mozek?
- 2 Jak popisoval Herophilus mozek?
- 3 Co byly podle středověkých myslitelů analýza, úsudek a paměť?

COMPLETE A RULE

was - were - did

9 Duality

1 Key words (viz. slovníček)

READING

3 Now read the article and check your answers.

- 1 Everything has two parts
- 2 Energy need force.
- 3 Positive and negative are two parts of the same energy.

TOPICS - Science

VOCABULARY

4 Go back to the text and find the words needed to form dualities.

- 1 energy - force
- 2 space - time
- 3 part - part
- 4 positive - negative
- 5 cause - effect

GRAMMAR

5 Fill in the blanks with the proper form of the verbs in brackets.

- 1 are trying
- 2 are always interacting
- 3 are taking
- 4 are passing
- 5 are you thinking

6 Fill in the blanks with:

- 1 but
- 2 too
- 3 and
- 4 also
- 5 and

10 Fields and forces

1 Key words (viz. slovníček)

READING

2 Read the article and check your guesses.

- 1 F
- 2 F
- 3 T
- 4 T

VOCABULARY

4 Look for words in the text derived from the nouns below. Identify if it's a noun or an adjective.

- 1 magnetic
- 2 atomic
- 3 geographical
- 4 electric
- 5 spherical

They are all adjectives

GRAMMAR

5 Circle the correct form of the verbs in brackets.

- 1 know
- 2 are standing
- 3 is spinning
- 4 believe
- 5 attract

TOPICS - Science

6 Fill in the gaps with>

- 1 ones
- 2 one
- 3 one
- 4 ones

7 Fill in the blanks with these words.

- 1 someone
- 2 Everywhere
- 3 somewhere
- 4 anything
- 5 anyone

11 Waves and Particles

1 Key words (viz. slovníček)

READING

3 Read the article and check your guesses. Which paragraphs give you the information?

- | | | |
|---|---|---|
| a | T | 2 |
| b | T | 1 |
| c | T | 2 |
| d | T | 3 |

VOCABULARY

4 List the comparative form of these adjectives.

- 1 faster
- 2 smaller
- 3 hotter
- 4 more interesting

GRAMMAR

5 Use the comparative form of the adjectives in Ex.4 to complete these sentences.

- 2 The waves in white light are longer than the waves in red light.
- 3 Maldacena's theory of light is more interesting than Newton's.
- 4 Nothing travels faster than light.
- 5 Blue light is hotter than red light.

6 Complete the paragraph with the comparative form of the adjective below.

- 1 more famous
- 2 more complete
- 3 easier

12 Genetics

1 Key words (viz. slovníček)

READING

2 Read the article carefully. Then answer the multiple choice questions.

- 1 a
- 2 a
- 3 b

TOPICS - Science

VOCABULARY

3 Write down the superlative form of these adjectives. Which one doesn't have a comparative or superlative form?

- b no comparative or superlative
- c the thickest blood
- d the most important topic
- e the clearest definition

GRAMMAR

4 Fill in the blanks with the superlative form of the adjectives in brackets.

- 1 clearest
- 2 most important
- 3 most difficult
- 4 most interesting
- 5 greatest

5 Fill in the blanks with:

- 1 there
- 2 it
- 3 there
- 4 there
- 5 there

Consolidation 3

VOCABULARY

1 Unscramble the letters to complete the sentences.

- | | | | |
|---|------------------|----|-------------|
| 1 | decays | 6 | black hole |
| 2 | Duality | 7 | particle |
| 3 | Gravity | 8 | Inheritance |
| 4 | Electromagnetism | 9 | genes |
| 5 | Light | 10 | cloning |

GRAMMAR

2 Fill in the blanks with these words.

- | | | | |
|---|-------|----|--------|
| 1 | large | 8 | this |
| 2 | what | 9 | it |
| 3 | every | 10 | their |
| 4 | our | 11 | during |
| 5 | at | 12 | her |
| 6 | a | 13 | larger |
| 7 | their | 14 | short |

3 The following is a dialogue between two students of Genetics from the University of Buenos Aires. Choose the correct option.

- | | | | |
|----|--------------|----|--------------|
| 1 | do | 11 | happening |
| 2 | have | 12 | always |
| 3 | help | 13 | our |
| 4 | to clone | 14 | it |
| 5 | you're | 15 | at |
| 6 | Isn't | 16 | also |
| 7 | it's | 17 | stronger |
| 8 | the | 18 | not |
| 9 | exagerrating | 19 | we're |
| 10 | us | 20 | specifically |

TRANSLATE

4 Translate the following sentences into your language.

- 1 Isaac Asimov právě píše novou knihu.
- 2 Čekám, až bude Asimova kniha vydána.
- 3 Žijeme v duální světě.

COMPLETE A RULE

5 Read the following sentences and complete the rule for the *present continuous* using the following words.

When we express actions that are happening at the time of speaking, we use the present continuous. We use **subject + am/is/are + -ing** form

13 Health

1 Key words (viz. slovníček). Which key words are similar in your language?
rhythm, mechanism, modules

READING

3 Read the article and mark the statements Right or Wrong. Correct the wrong statements.

- | | | |
|---|---|---|
| a | R | |
| b | R | |
| c | W | The red blood cells transport oxygen around the body. |
| d | W | The white blood cells attack germs. |
| e | W | Antibodies attack unwanted cells. |

VOCABULARY

3 Read the following sentences and choose the closest meaning to the underlined words.

- 1 b
- 2 a
- 3 a
- 4 b

GRAMMAR

4 Fill in the blanks with the correct affirmative or negative form of *be going to*.

- 1 aren't going to
- 2 is going to
- 3 Is - going to
- 4 are - going to
- 5 aren't going to

5 Complete the sentences with *for* where necessary.

- 1 for
- 2 for
- 3 -
- 4 for - for

14 The Biosphere

1 Key words (viz. slovníček)

READING

2 Now read the text carefully and check your guess.
environmental problems

4 Choose the topic that best matches each paragraph.

- 1 a
- 2 c
- 3 c
- 4 a

VOCABULARY

5 Read and choose the correct word.

- 1 lifeless
- 2 ecological
- 3 breathe
- 4 pollutants

GRAMMAR

6 Fill in the blanks with:

- 1 will (all the possibilities are possible)
- 2 are not going (all the possibilities are possible)
- 3 are going to
- 4 will
- 5 won't

7 Complete these sentences with the right form of the verbs in the list

- 1 will learn
- 2 will react
- 3 won't do
- 4 will need
- 5 won't be

15 The Quantum Concept and the Paradigm Shift

1 Key words (viz. slovníček)

READING

2 What do you know about the words *quantum* and *paradigm*?

Quantum Concept - accumulation of something
Paradigm Shift - a change in the world view

3 Now read the text and check your answers. Decide whether the statements below are true or false.

- 1 T
- 2 T
- 3 T
- 4 T
- 5 F

TOPICS - Science

VOCABULARY

5 Fill in the gaps with the words from the text.

- 1 accumulation
- 2 knowledge
- 3 whole
- 4 inherent

GRAMMAR

6 Complete the sentences with:

- 1 have
- 2 hasn't
- 3 haven't
- 4 has
- 5 have

7 Fill in the blanks with present perfect form of the verbs in the list.

- 1 have developed
- 2 has offered
- 3 has changed
- 4 have never considered
- 5 have increased

16 Methods and Theories

1 Key words (viz. slovníček)

READING

2 Read the article and mark the following statements right or wrong. Correct the wrong statements.

- 1 R
- 2 R
- 3 W We are constantly obtaining new information, making new observations and carrying our new experiments.
- 4 W Constructive theories use synthesis.
- 5 R

VOCABULARY

3 Match these verbs with their definition.

- 1 e
- 2 d
- 3 c
- 4 a
- 5 b

GRAMMAR

4 Use the present perfect form of the verbs in brackets.

- 1 has brought
- 2 have been
- 3 have never lost
- 4 has stated
- 5 has helped
- 6 has always welcomed
- 7 has just made
- 8 Have you ever made

Consolidation 4

VOCABULARY

1 Use these words to fill in the blanks.

- 1 biosphere
- 2 white cells
- 3 lifeless
- 4 plurality
- 5 pollutants
- 6 rhythm
- 7 breathe
- 8 clusters

GRAMMAR

2 Read the following article about how plants communicate. Fill in the blanks with the correct form of the verb in the past simple or the present perfect.

- | | | | |
|---|----------------------------|----|---------------------|
| 1 | have recently demonstrated | 7 | emitted |
| 2 | have shown | 8 | passed |
| 3 | put | 9 | stimulated |
| 4 | connected | 10 | have learned/learnt |
| 5 | made | 11 | said |
| 6 | injected | 12 | said |

3 Choose the correct word in brackets.

- 1 writing
- 2 explaining
- 3 are trying
- 4 everything
- 5 anything
- 6 working
- 7 mathematical
- 8 know
- 9 somewhere
- 10 there is
- 11 There is
- 12 saying
- 13 interacting
- 14 developing
- 15 speculating
- 16 There is
- 17 live
- 18 biggest
- 19 there is

4 Circle the correct form of the verbs in brackets.

- 1 haven't seen
- 2 have already reduced
- 3 knew
- 4 partici[ated
- 5 has included

COMPLETE A RULE

5 Fill in the blanks with past simple or present perfect.

- 1 past simple
- 2 present perfect