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INTERNATIONL MATHENATICS AND SCIENCE OLYMPIAD FOR PRIMARY SCHOOLS (IMSO) 2005

Science Contest in Taiwan

Name:_____ School:_____ Grade:_____ ID number:_____

Directions (1–30): Each question is followed by four choices. Decide which choice best completes the statement or answers the question. On the separate answer sheet, record your answers in the spaces provided by writing the same *letter* as the answer you have chosen.

Each correct answer is worth 4 points. Time limit: 90 minutes.

- 1 Which statement explains why the Sun appears to rise and set each day?
 - A Earth rotates.
 - B The Sun rotates.
 - C The Sun revolves around Earth.
 - D Earth revolves around the Sun.

- 2 Which cycle is correct?
 - A morning → sunrise→ afternoon→ sunset
 - B summer → fall → winter → spring
 - C seed →mature plant → fruit → seedling
 - D baby → teenager → child → adult

- 3 Which statement describes the general path the Sun takes as it appears to move across the sky for an observer in Taiwan?
 - A The Sun rises in the west and sets in the east.
 - B The Sun rises in the east and sets in the west.
 - C The Sun rises in the north and sets in the south.
 - D The Sun rises in the south and sets in the north.

- 4 Which unit is used to measure how warm or cool the air is?
 - A grams
 - B kilometers
 - C degrees Celsius
 - D cubic centimeters

- 5 A soil sample contains living and nonliving materials. Which material was once living?
 - A sand particles
 - B decomposing leaves
 - C small pebbles
 - D water droplets

- 6 Water is boiled in a pan on a stove. The state of matter of the water changes from
- A liquid to solid
 - B solid to liquid
 - C gas to liquid
 - D liquid to gas
- 7 Which kind of energy is produced when a student beats a drum?
- A electrical
 - B sound
 - C light
 - D chemical
- 8 Electricity traveling through a wire is an example of
- A a force applied by a simple machine
 - B energy flowing through the water cycle
 - C Earth's gravitational pull on an object
 - D energy being transferred from place to place
- 9 Which forms of energy are produced by a burning candle?
- A heat and mechanical
 - B electrical and sound
 - C light and electrical
 - D heat and light
- 10 A toaster changes electrical energy to
- A heat energy
 - B solar energy
 - C sound energy
 - D magnetic energy
- 11 In order to survive, all animals need
- A roots, leaves, and stems
 - B eyes, nose, and ears
 - C light, soil, and nutrients
 - D food, water, and air
- 12 What does a seed contain that provides energy for germination?
- A water
 - B stored food
 - C soil
 - D sunlight

- 13 The main purpose of a plant's flowers is to
A provide support
B provide water
C produce seeds
D produce food
- 14 Which color fur will best protect a rabbit from a hawk in a snowy field?
A brown
B gray
C white
D black
- 15 Which food is an example of a healthy snack?
A an apple
B a candy bar
C cookies
D potato chips
- 16 What is one healthy way that people can help to maintain their weight?
A washing their hands regularly
B brushing their teeth twice daily
C sleeping 8 hours daily
D exercising regularly
- 17 What is the role of a producer in a food chain?
A preys on animals
B eats decayed animals
C makes food
D eats plants
- 18 The diagram below shows a potato plant in a cup. The cup was originally filled to the top with water. Which statement best explains why the cup no longer contains water?
A The water froze.
B The water condensed.
C The water was taken in by the roots.
D The water was moved by gravity.

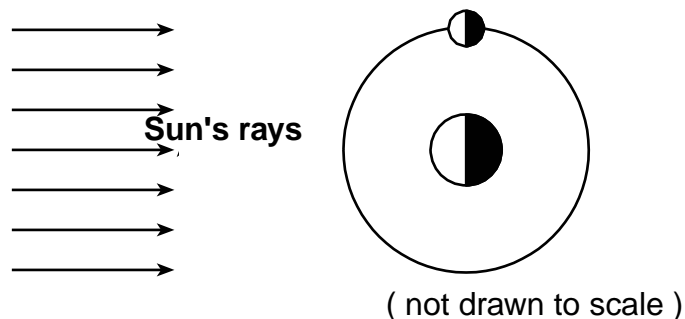


- 19 Which list below best shows how energy moves in a food chain?
- A grass → cows → humans → Sun
 - B Sun → grass → cows → humans
 - C humans → cows → grass → Sun
 - D cows → grass → Sun → humans

Base your answers to questions 20 and 21 on the food chain below.

Green plants → Insects → Frogs → Snakes

- 20 In this food chain, the green plants are
- A producers
 - B predators
 - C decomposers
 - D prey
- 21 The frogs in this food chain get their energy directly from
- A eating the insects
 - B being eaten by the snakes
 - C eating other frogs
 - D eating green plants
- 22 The diagram below shows the Moon revolving around Earth as viewed from space.



What makes it possible to see the Moon from Earth?

- A The surface of the Moon emits its own light, which can be seen from Earth.
 - B The Moon absorbs light during the day and emits the light at night.
 - C Light emitted by Earth illuminates the Moon's surface, making it visible.
 - D Light emitted by the Sun is reflected to Earth by the Moon's surface.
- 23 The chart below shows how long it took a seed to sprout at three different temperatures.

Temperature	Days Needed to Sprout
15° C	15
18° C	13
20° C	11

Based on the chart, how long will it take for the same kind of seed to sprout at 23° C?

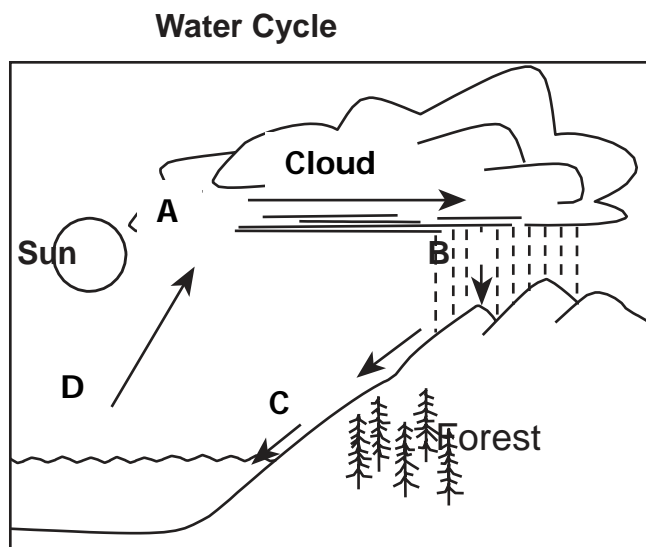
- A 11 days
- B more than 11 days
- C less than 11 days
- D may be 11 days, may be not.

- 24 A student planted the same kind of seeds in pots *A* and *B*. She planted five seeds in pot *A* and five seeds in pot *B*. The amount and type of soil in both pots was the same. She added the same amount of water to both pots each week. Pot *A* was placed by a sunny window. Pot *B* was placed in a dark room. After four weeks, she observed the plants in both pots. The plants in pot *A* were green, with tall, thick stems. The plants in pot *B* were yellow, with tall, thin stems.

Which statement best explains why the plants in pot *A* were different from the plants in pot *B*?

- A Pot *A* contained more soil than pot *B*.
- B Pot *A* contained more seeds than pot *B*.
- C Pot *A* received more sunlight than pot *B*.
- D Pot *A* received more water than pot *B*.

Base your answers to questions 25 through 27 on the water cycle shown below. Four parts of the water cycle are labeled *A*, *B*, *C*, and *D*.



- 25 Which process is occurring at *D*?
- A condensation
 - B evaporation
 - C precipitation
 - D runoff

- 26 Water flowing on Earth's surface at *C* is called
 A condensation
 B evaporation
 C precipitation
 D runoff
- 27 Which process is occurring at *B*?
 A condensation
 B evaporation
 C precipitation
 D runoff
- 28 The data table below shows the masses and volumes of three objects (I, II, and III).

I	II	III
Mass = 4g	Mass = 6 g	Mass = 8 g
Volume = 2 cm ³	Volume = 6 cm ³	Volume = 4 cm ³

The formula for calculating an object's density is

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

Which statement about the densities of these three objects is correct?

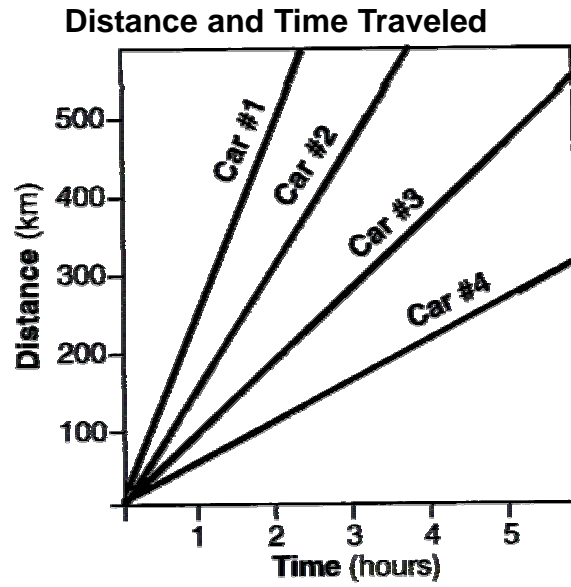
- A II is more dense than I.
 B I is more dense than III.
 C II and III have equal densities.
 D I and III have equal densities.
- 29 The data table below shows the average distance of four planets from the Sun and the approximate time it takes those planets to orbit the Sun.

Planet	Average Distance from the Sun (millions of kilometers)	Approximate Time It Takes the Planet to Orbit the Sun (Earth days)
Mercury	57.9	88
Venus	108.2	225
Earth	149.6	365
Mars	227.9	687

Which statement is best supported by the data in the table?

- A Venus takes less time to orbit the Sun than Mercury does.
 B Mars takes less time to orbit the Sun than Earth does.
 C Mars takes more time to orbit the Sun than Earth does.
 D Venus takes more time to orbit the Sun than Mars does.

- 30 The graph below shows the distance and time traveled by four cars.



Which car traveled the slowest?

- A Car #1
- B Car #2
- C Car #3
- D Car #4

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