ICATS SCIENCE Contest 2017

JUNIORS GRADE 5 & 6

INTERNATIONAL CATS CONTESTS

COMPETENCE & APTITUDE TESTING SERVICES

ICATS SCIENCE CONTEST 2017

JUNIORS (GRADE 5 & 6)

TIME ALLOWED : 90 MINUTES
MAXIMUM MARKS : 90
TOTAL QUESTIONS : 30 MCQS

INSTRUCTIONS

1. DON'T START ATTEMPTING THE PAPER UNTIL INSTRUCTED BY THE INVIGILATORS.
2. INSTRUCTIONS FROM THE EXAMINATION INVIGILATORS MUST BE CARRIED OUT PROMPTLY.
3. WRITE YOUR NAME, FATHER NAME, SCHOOL NAME, ADDRESS ETC AT THE BUBBLE SHEET (ANSWER SHEET) ONLY.
4. RECORD ALL ANSWERS ON THE BUBBLE SHEET ONLY. SELECT BEST ANSWER FROM THE FOUR GIVEN OPTIONS AND MARK ONLY ONE OPTION IN EACH QUESTION.
5. USE BLUE / BLACK INK TO FILL UP THE CIRCLES FOR YOUR ANSWERS ON THE BUBBLE SHEET. USE OF LEAD PENCIL IS NOT ALLOWED.
6. USE OF ANY HELPING MATERIAL INCLUDING CELL PHONES AND ELECTRONIC DEVICES IS STRICTLY PROHIBITED.
7. EVERY CORRECT ANSWER EARNS THREE POINTS. THERE WOULD BE NEGATIVE MARKING. ONE POINT WOULD BE DEDUCTED FOR EVERY INCORRECT ANSWER.
8. CANDIDATES MAY NOT LEAVE THE EXAMINATION ROOM UNESCORTED FOR ANY REASON, AND THIS INCLUDES USING THE WASHROOM.
9. NO MATERIALS OR ELECTRONIC DEVICES SHALL BE BROUGHT INTO THE ROOM.
10. THERE ARE FIVE CATEGORIES OF THE CONTEST AS UNDER:
    - A. TODDLERS (GRADE 1 & 2)
    - B. KIDS (GRADE 3 & 4)
    - C. JUNIORS (GRADE 5 & 6)
    - D. JUVENILES (GRADE 7 & 8)
    - E. ADOLESCENTS (GRADE 9 & 10 / O-LEVELS)
11. ONLY REGISTERED STUDENTS CAN PARTICIPATE IN THE CONTEST.
12. NO CANDIDATE SHALL TAKE OUT OF THE HALL ANY ANSWER BOOK(S) OR PART OF AN ANSWER BOOK, WHETHER USED OR UNUSED, OR OTHER SUPPLIED MATERIAL.
13. IF A PARTICIPANT DOES NOT UNDERSTAND A WORD OR PHRASE ON THE EXAM PAPER, NEITHER EXAMINER NOR INVIGILATOR IS PERMITTED TO ANSWER.
14. FOR INFORMATION ABOUT UPCOMING CONTESTS OR PROVIDING VALUABLE FEEDBACK, PLEASE VISIT WWW.CATSCONTESTS.ORG
15. ANY ACADEMIC MISCONDUCT OR MALPRACTICE MUST BE REPORTED TO INTERNATIONAL CATS CONTESTS AT INFO@CATSCONTESTS.ORG

Q1. **The following is a list of several human body systems.**

- **Circulatory system**
- **Muscular system**
- **Reproductive system**
- **Respiratory system**

Which two systems in the list use oxygen and release carbon dioxide when they work together?

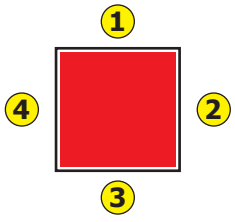
A Circulatory and muscular

B Muscular and reproductive

C Circulatory and respiratory

D Respiratory and reproductive

Q2. **Four students stand facing a box. The diagram below shows an overhead view of the box. The numbered circles represent the positions of the students.**



What do the students need to do to slide the box to the northeast?

A Students 1 and 2 push, and Students 3 and 4 pull.

B Students 1 and 4 push, and Students 2 and 3 pull.

C Students 2 and 3 push, and Students 1 and 4 pull.

D Students 3 and 4 push, and Students 1 and 2 pull.

Q3. **Ahmad is trying to decide which pan to use for cooking. He wants his food to cook quickly and evenly. He has the following types of pans from which to choose:**

- **Aluminum**
- **Copper**
- **Glass**
- **Plastic**

Which material should Ahmad use for cooking?

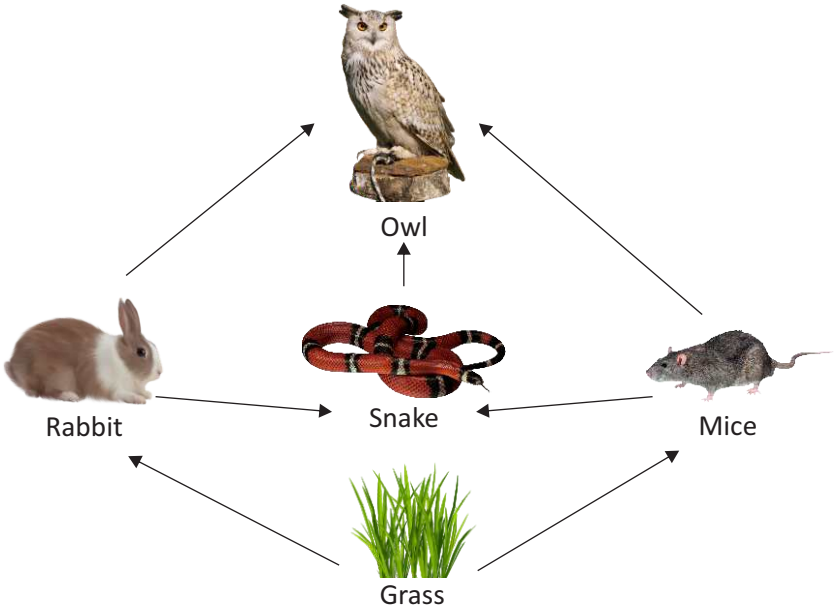
A Aluminum, because it is a good electrical conductor

B Copper, because it is a good thermal conductor

C Glass, because it is a good electrical insulator

D Plastic, because it is a good thermal insulator

Q4. **The following food web shows different organisms in a field.**



Which of the following will happen if animal control removes all of the snakes from the field?

A There will be more mice and rabbits and less grass.

B There will be fewer mice and rabbits and more owls.

C There will be fewer mice and more rabbits and grass.

D There will be more owls, mice, and grass and fewer rabbits.

Q5. **The following pictures show examples of potential energy.**

Which of the following is an example of chemical potential energy?

A 

The trampoline

B 

The bow and arrow

C 

The child on the swing

D 

Batteries in a flashlight

Q6. **A student hiking in a rocky area on a mountain notices that wide, deep cracks have formed in some of the large rocks. Some of the cracks are so large that the rocks have broken apart. Which process most likely caused these rocks to crack and break?**

A Erosion by wind

B Water freezing and thawing

C Erosion by fast-moving water

D Sediments being deposited

Q7. **In six months, how far will Earth have gone in its orbit around the sun compared to how far the moon has gone in its orbit around Earth?**

A
- Earth: completed one orbit of the sun
- Moon: completed one orbit of Earth

B
- Earth: completed six orbits of the sun
- Moon: completed twelve orbits of Earth

C
- Earth: completed half of one orbit of the sun
- Moon: completed six orbits of Earth

D
- Earth: completed a third of one orbit of the sun
- Moon: completed three orbits of Earth

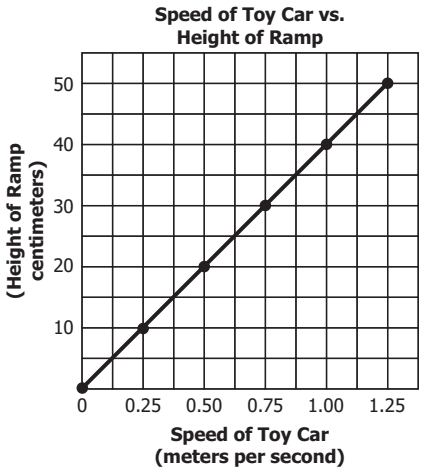
Q8. **Which organism produces oxygen for other organisms?**

A a fish **B** a water lily **C** a blue bird **D** a snail

Q9. **Seeds that remain inactive until the right conditions of light, water, and soil are present are called —**

A pollen **B** dormant **C** flowers **D** recycled

Q10. **The following graph shows the relationship between the height of a ramp and the speed of a toy car released from the top of the ramp.**



Which statement describes the pattern of the data on the graph?

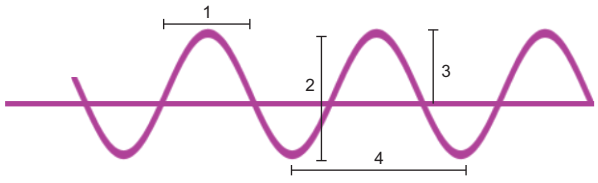
A The faster the speed, the farther the toy car will travel off of the ramp.

B The speed remains the same even if the height of the ramp is increased.

C The increase in height of the ramp causes the toy car to decrease speed.

D The higher the ramp, the faster the speed of the toy car.

Q11. **Look at this wave pattern.**

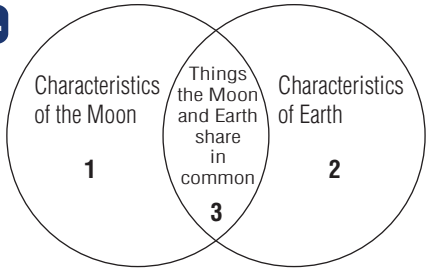


Which measurement line represents the amplitude of the wave?

A 1 **B** 2

C 3 **D** 4

Q12.



Which of these would fit best in area 3 of this Venn diagram?

A Rocky surface

B Active volcanoes

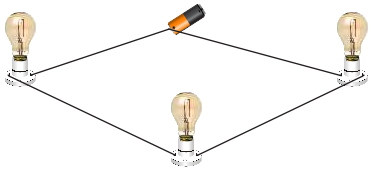
C Liquid water present

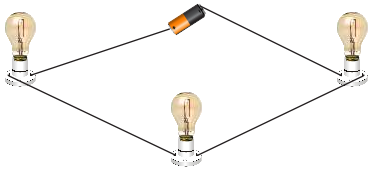
D Oxygen in atmosphere

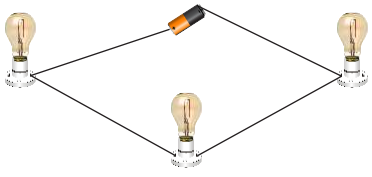
Q13. **A student made observations of four rock samples. Which of these observations most likely describes a sedimentary rock?**

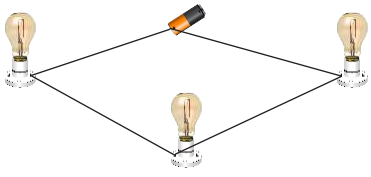
A Sample 1 has bands of light and dark crystals.
B Sample 2 has pink, grey, and white crystals grown together.
C Sample 3 is made up of one huge, pale pink crystal.
D Sample 4 is made up of layers of sand grains cemented together.

Q14. **A class prepared some electric circuits using a battery, connecting wires, and three light bulbs. Which of these circuits can make the three bulbs light?**

A


B


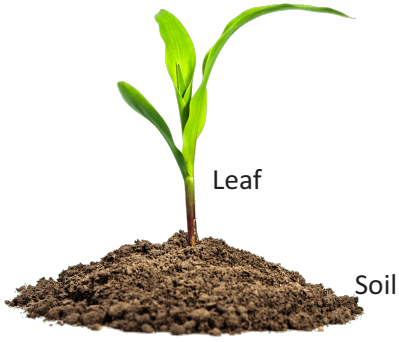
C


D


Q15. **The flower's stem appears larger under water because the water —**

A absorbs light
B produces light
C repels light
D refracts light

Q16.



The picture shows a sprouting bean plant. The leaf produced will help the plant by —

A absorbing water from the air for nourishment

B using sunlight for energy in food production

C reproducing more bean plants for survival of the species

D adding support for the plant as it grows taller

Q17. **Which of these best describes a tornado?**

A A winter storm that produces frozen precipitation

B A rotating funnel-shaped cloud with strong winds and thunderstorms

C A severe weather condition with low temperatures and blowing snow

D A storm that forms over warm ocean water and has extremely strong winds

Q18. **The electrician in this picture is wearing rubber gloves for protection. The purpose of the rubber gloves is to —**

A keep the electrician dry

B create an electrical circuit

C produce electricity

D insulate the electrician

Q19. **Some students make a model to show one of the first steps in the formation of sedimentary rock. The students pour 2 centimeters of light-colored sand into a clear plastic box. Then they add 1 centimeter of gravel. Finally they pour 2 centimeters of dark-colored sand on top of the gravel. Which characteristic of sedimentary rock does this model best show?**

A Sedimentary rock is made of layers.

B Sedimentary rock is cemented bits of rock.

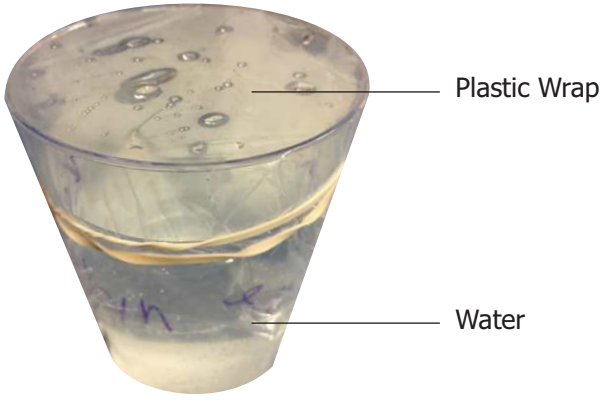
C Sedimentary rock is often limestone.

D Sedimentary rock is common in Texas.

Q20. **Granite is a hard material and forms from cooling magma. Granite is a type of —**

A lava stone **B** igneous rock **C** volcanic dust **D** sedimentary rock

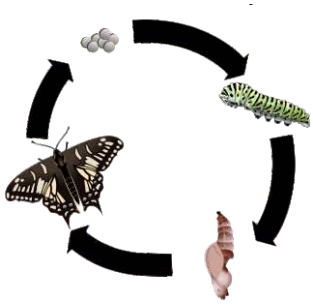
Q21. **A student makes a model of the water cycle by using a cup, some water, and plastic wrap. After the student places the model near a sunny window, moisture forms on the inside of the plastic wrap.**

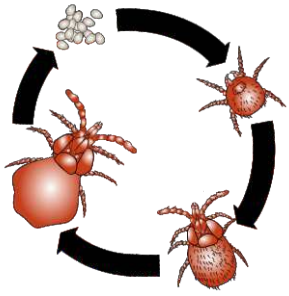


What change is the student most likely observing in this model?

A Freezing **B** Condensation **C** The warming of air **D** The formation of clouds

Q22. **The life cycles of a butterfly and a chigger are shown below.**





How is the life cycle of chiggers different from the life cycle of butterflies?

A Chigger larvae have legs.

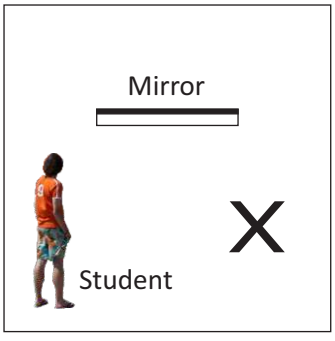
B Chiggers have a nymph phase.

C Chiggers go through metamorphosis.

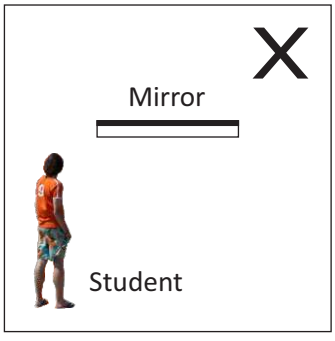
D Chigger larvae hatch from eggs.

Q23. **A student looks into a mirror and sees an image of an object. Which diagram shows an X where the object is most likely located?**

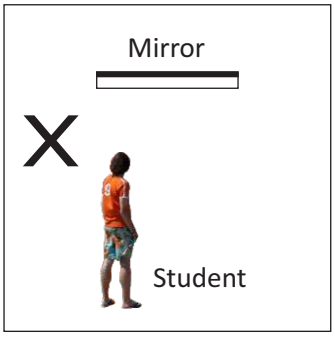
A



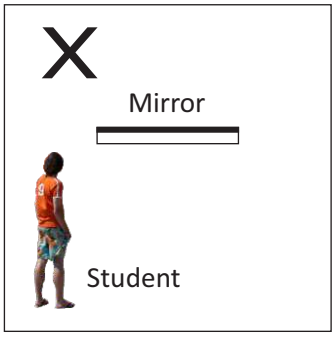
B



C



D



Q24. **A student draws diagrams of her house and the location of the sun in the sky. Which diagram below does <u>not</u> correctly represent the location of the sun at the time indicated?**

A

12:05 P.M.

B

08:45 A.M.

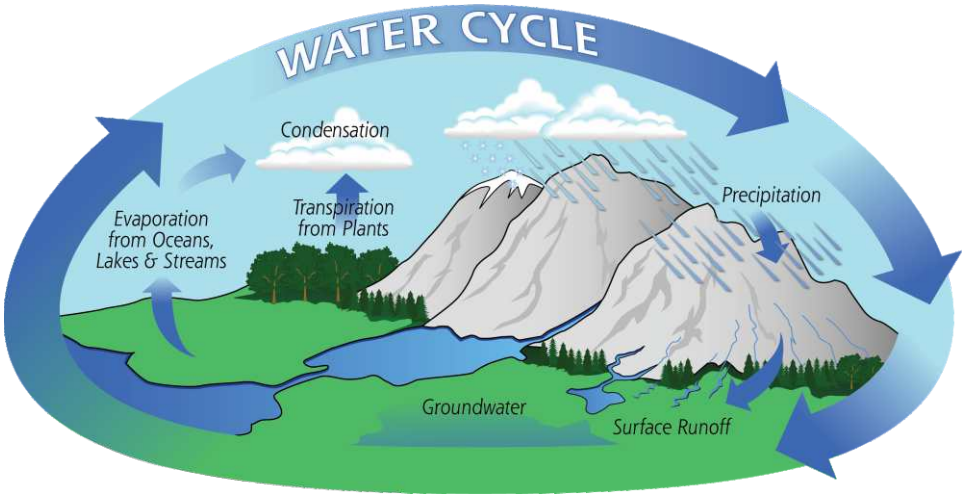
C

10:15 A.M.

D

07:00 P.M.

Q25. **During which part of this cycle does it snow?**



A Evaporation **B** Condensation **C** Precipitation **D** Runoff

Q26. **A student classifies the objects shown based on their physical properties.**


Penny


Cotton ball


Plastic ruler


Metal paper clip

Eraser


Key


Iron nail


Rubber band

Which property <u>cannot</u> be used to classify these objects into more than one group?

A Magnetism **B** Mass **C** Electrical conductivity **D** Solubility in water

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Q27. **Resources can be classified as renewable or nonrenewable. Which of these resources is classified in the same category as coal?**

A Wood **B** Wind **C** Corn oil **D** Petroleum

Q28. **A wide U-shaped valley is shown in the photograph below.**

This valley was most likely formed by —

A flash flooding **B** a glacier **C** a hurricane **D** melting snow

Q29. **There is concern about the effect that overfishing is having on the population of tuna, swordfish, and other large fish in the ocean. An organization has come up with the following four suggestions on how to manage the fish population.**

Suggestions for Preserving Fish Population

Suggestion	Description
Create fish farms	Build artificial environments inland to produce fish for food
Control fishing	Set limits as to the amount of fish that can be caught and the time of year fishing is done
Increase the population of the fish	Bring in fish from other places to boost the population
Increase the amount of food for the fish	Add nutrients to the water to attract more fish to the area

Which suggestion would conserve the fish in the ocean?

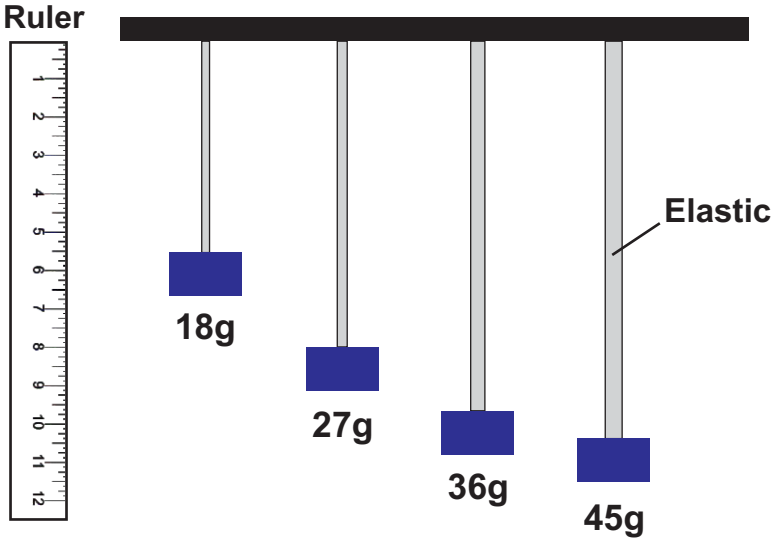
A Creating fish farms would increase the number of fish worldwide.

B Controlling fishing would help increase the existing fish population.

C Introducing new fish would increase that particular fish population.

D Increasing the amount of food would encourage fish migration.

Q30. **A student designs an experiment to test the effect of the width of a piece of elastic on the elastic's ability to stretch. The student selects four pieces of elastic with different widths but the same length. The student then attaches blocks with different masses to the pieces of elastic. The results of the student's experiment are shown below**



What should the student do to improve this experiment?

A Use blocks of equal mass on the four pieces of elastic

B Use blocks with enough mass to cause the four pieces of elastic to break

C Use more than four pieces of elastic and four blocks

D Use four pieces of elastic with different lengths but the same width