



INTERNATIONAL CATS CONTESTS

COMPETENCE & APTITUDE TESTING SERVICES



GRADE 5 & 6 (JUNIORS)

Time Allowed: 90 Mins.

Maximum Marks: 90



ICATS
SCIENCE Contest 2018
QUESTION BOOKLET

ICATS SCIENCE CONTEST 2018

JUNIORS (GRADE 5 & 6)

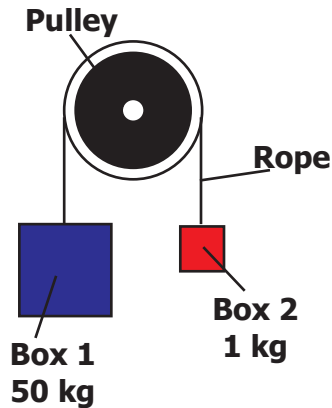
TIME ALLOWED : 90 MINUTES, MAXIMUM MARKS : 90

TOTAL QUESTIONS : 30 MCQS

INSTRUCTIONS

1. DON'T START ATTEMPTING THE PAPER UNTIL INSTRUCTED BY THE INVIGILATORS.
2. INSTRUCTIONS FROM THE EXAMINATION INVIGILATOR MUST BE CARRIED OUT PROMPTLY.
3. CAREFULLY RECHECK YOUR NAME, FATHER NAME, SCHOOL NAME, ADDRESS ETC AT THE BUBBLE SHEET / ANSWER SHEET.
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.** This diagram shows two boxes hanging over a pulley. The boxes are fastened to the opposite ends of the same piece of rope. The rope does not stretch or break.



What will happen in this situation?

- A** Box 1 will move up, and Box 2 will move down.
 - B** Box 1 will move down, and Box 2 will move up.
 - C** Both boxes will not move.
 - D** Both boxes will move down.
-

- Q2.** A student glued two pieces of wood together. The student needs to hold the two pieces of wood together tightly until the glue is fully dry the next day. Which of the following tools is best for holding the two pieces of wood together until the glue is dry?



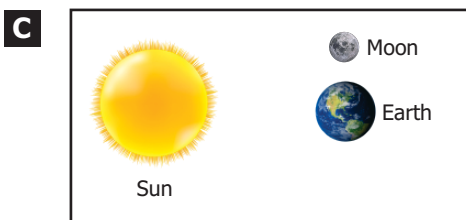
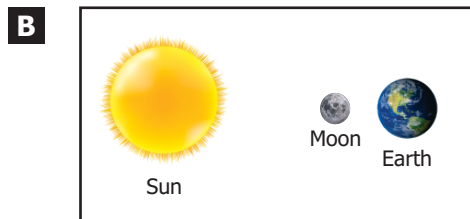
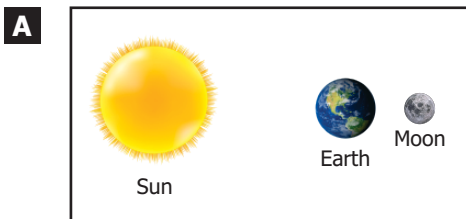
Q3. An atmospheric condition is diagrammed below.

solar energy → warm air rises → air cools, then sinks → air currents

This process results in the formation of

- A** clouds **B** rain **C** wind **D** None of these
-

Q4. Which model best shows a solar eclipse?



D All of the above

(Not drawn to scale)

- Q5.** Four objects were dropped from a height of 10 meters. The order in which they reached the ground is shown in the table given below:

Falling Objects

Object	Order
Feather	3rd
Golf Ball	1st
Sheet of Notebook Paper	4th
Foam Ball	2nd

The sheet of paper took the longest time to reach the ground most likely because

- A** it has the most mass. **B** it has the most surface area.
C it has the least weight. **D** it has the maximum weight.
-

- Q6.** A bottle company noticed that bottle caps were being put on bottles with too much force, resulting in broken bottles. Engineers changed the capping device so it would use less force. Which step should the engineers take before the capping device is considered fixed?

- A** observe the number of broken bottles after the device has been adjusted
B increase the size of the bottle caps used in the capping process
C replace the bottle caps with different caps that cover a larger bottle opening
D all of the above

- Q7.** Water and ketchup are each poured onto a tray from two separate bottles. The tables below show the amount of time it takes each liquid to flow from the top to the bottom of a tray.

Water Data

Trial No.	Time (sec.)
1	2
2	3
3	2

Ketchup Data

Trial No.	Time (sec.)
1	35
2	35
3	40

What conclusion is best supported by the data in the tables?

- A** Liquids with sugar crystals travel to the bottom of a tray faster.
- B** Thicker liquids take less time to travel to the bottom of a tray.
- C** Thicker liquids take longer to travel to the bottom of a tray.
- D** Thicker liquids do not take longer to travel to the bottom of a tray.

- Q8.** Some organisms are shown in the drawing below.

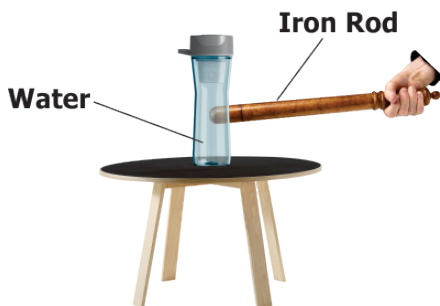
Which statement best compares how these organisms obtain energy?

- A** The deer, flower, bird, grass, and tree must eat food.
- B** The deer and bird make food, and the tree, grass, and flower must eat food.
- C** The deer, flower, bird, grass, and tree must make food.
- D** The tree, grass, and flower make food, and the deer and bird must eat food.



Study the investigation given below and answer questions 9 and 10.

- Q9.** A student pours water into a glass bottle. Next, the student gently taps the outside of the bottle with an iron rod.



Which idea is most likely being investigated by the student?

- A** energy transfer through materials **B** heat conduction through materials
C magnetic properties of materials **D** reflective properties of materials

- Q10.** Which observations best support the answer to question 9?

- A** The temperature of the water remains the same after the student taps the bottle with the iron rod. The iron rod and the glass bottle are made of different materials.
B A sound is produced when the student taps the bottle with the iron rod. The temperature of the water remains the same after the student taps the bottle with the iron rod.
C A sound is produced when the student taps the bottle with the iron rod. Waves are produced in the water, showing vibration.
D Waves are produced in the water, showing vibration. The iron rod and the glass bottle are made of different materials.

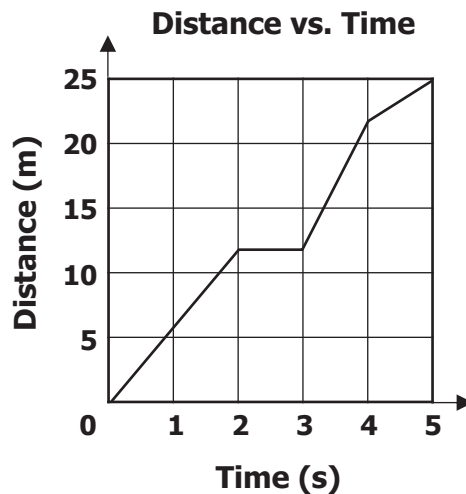
- Q11.** This diagram shows a light bulb. The bottom of the light bulb is shaped so that the bulb fits securely into a light socket.



Which type of simple machine is the bottom of the bulb?

- A** lever **B** pulley **C** screw **D** wedge
-

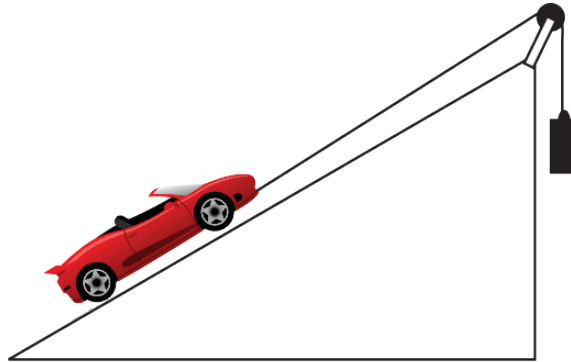
- Q12.** This graph shows the motion of an animal.



When does the animal remain still?

- A** between second 1 and second 2 **B** between second 2 and second 3
C between second 3 and second 4 **D** between second 4 and second 5

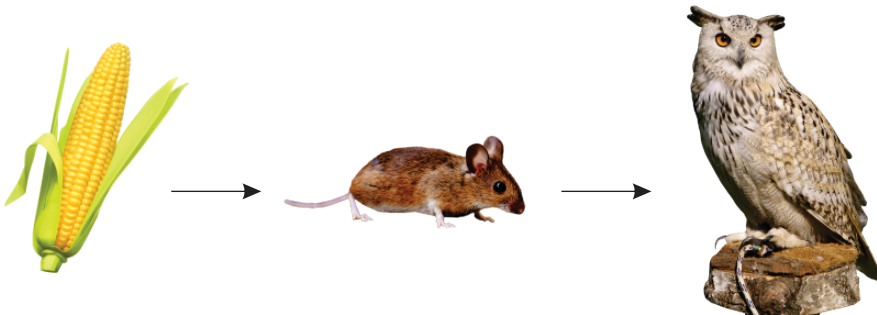
- Q13.** This diagram shows a ramp with a toy car at the bottom. A string is attached to the front of the car and the string goes over a pulley at the top of the ramp. A weight is attached to the other end of the string.



What would be *most* responsible for the toy car being pulled up the ramp?

- A** friction **B** gravity **C** kinetic energy **D** momentum

- Q14.** This diagram shows a food chain.



Which term describes the role of the corn in this food chain?

- A** carnivore **B** consumer **C** herbivore **D** producer

Q15. A student is riding a bike and applies the brakes. Which most helps the bike to stop?

A friction

B gravity

C heat

D momentum

Q16. Two groups of children are each pulling on the opposite ends of a rope. If they are pulling on the rope with equal but opposite forces, what will happen to the rope?



A It will stay in place between the two groups.

B It will move toward the right.

C It will move toward the left.

D It will fall to the ground.

Q17. Which is the best example of habitat reduction caused by humans?

A Birds and animals flee a forest fire caused by lightning.

B Birds become sick from eating insects new to their area.

C Fish swimming to breeding grounds are blocked by dams.

D A new species of fish migrates up a river, competing with native fish for food.

Q18. Which of the following statements best describes the climate of an area rather than its weather conditions?

- A** The summers are hot and humid. **B** The temperature at noon was 86°F.
- C** Total rainfall on April 9 was 2 inches. **D** Strong winds are expected tomorrow evening.

Q19. A student has two plants of the same type, plant X and plant Y. Each plant is in its own pot outside in a sunny location. The student gives both plants the same amount of water and nutrients. The table below shows the student's notes about both plants.

	Plant X	Plant Y
Soil	moist	moist
Number of Roots	many	many
Number of Leaves	12	4
Appearance of Leaves	green	yellow and wilted
Number of Flowers	4	1
Amount of Fruit	1	0
Stem	thick and green	brown spots, small holes, bent
Other Notes	growing quickly	small insects near plant, some dry leaves fell off

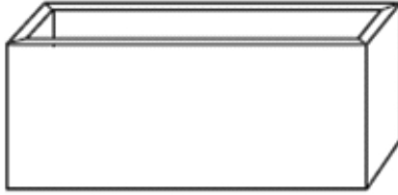
Based on the student's notes, what is the most likely reason for the differences between the two plants?

- A** Plant Y's roots were damaged by insects, so it cannot make as much food as plant X can.
- B** Plant Y's flowers were damaged by insects, so it cannot store as many minerals as plant X can.
- C** Plant Y's fruit was damaged by insects, so it cannot attract pollinating insects as well as plant X can.
- D** Plant Y's stem was damaged by insects, so it cannot move as much water to its leaves as plant X can.

- Q20.** A student uses the two containers shown below to investigate the properties of a liquid.



Container 1



Container 2

The student fills container 1 with a liquid and then pours all the liquid from container 1 into container 2. Based on the student's investigation, which of the following statements best describes a property of a liquid?

- A** It takes the shape of its container.
 - B** It expands to completely fill its container.
 - C** It stays the same shape in different containers.
 - D** It has different weights in different containers.
-

- Q21.** Small pieces of ice are broken off a large block of ice. Compared to the block of ice, the pieces of ice will completely melt

- A** slower than the block of ice.
- B** faster than the block of ice.
- C** at a higher temperature than the block of ice.
- D** at the same rate as the block of ice.

- Q22.** A student wants to model what causes day and night on Earth. The student uses a globe to represent Earth and a light bulb to represent the Sun. Pictures of the globe and light bulb are shown below.



Globe



Light Bulb

How can the student use the globe and light bulb to show what causes day and night on Earth?

- A** by rotating the globe near the light bulb
 - B** by tilting the globe and rotating the light bulb
 - C** by turning the light bulb on and off near the globe
 - D** by moving the light bulb in a circle around the globe
-

- Q23.** Which of the following examples best describes one type of energy changing into another?

- A** a magnet sticking to a refrigerator
- B** sound traveling through a solid wall
- C** an electric heater warming up a cold room
- D** light rays bending as they pass through glass

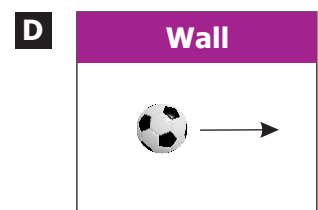
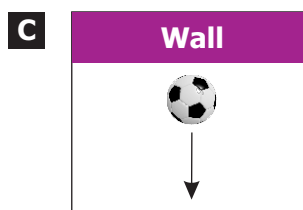
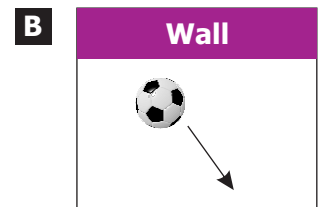
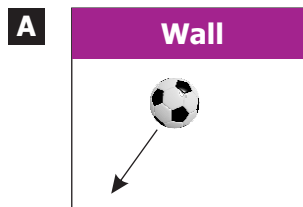
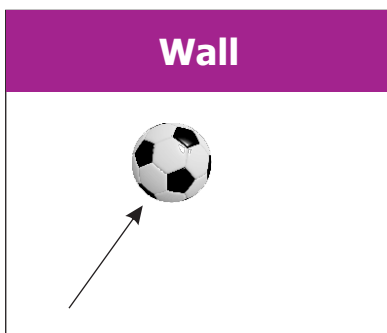
Q24. As a city's population grows, wooded areas are replaced by housing developments. What effect will this most likely have on the species in the wooded areas?

- A** More natural predators will move to the wooded areas.
 - B** New species will migrate to the wooded areas.
 - C** A few species will adapt to become predators.
 - D** The population of some species will become zero.
-

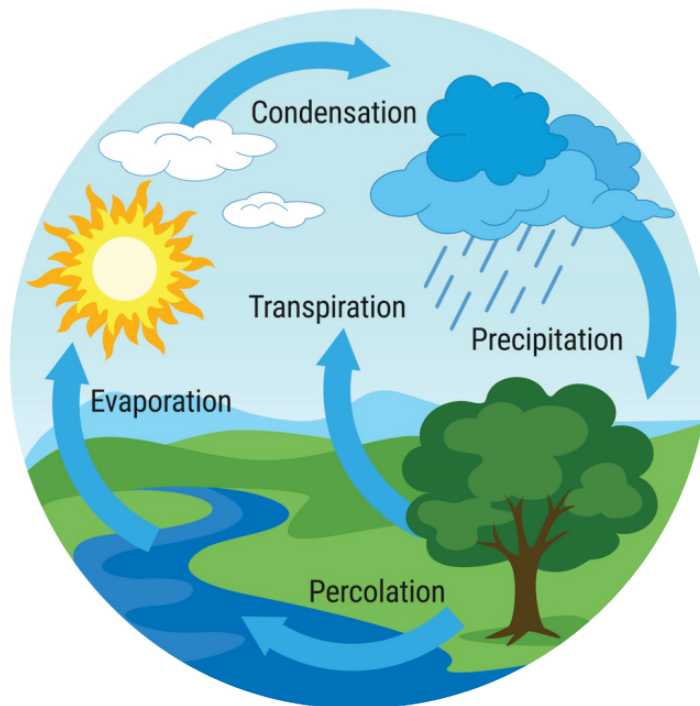
Q25. Newton's understanding of gravity was important for the development of which technology?

- A** a satellite that orbits Earth
 - B** a car powered with corn oil
 - C** robots that help with daily tasks
 - D** instruments that detect radio waves coming from space
-

Q26. In which direction will the ball most likely go after it hits the wall?



Q27. Not all of the minerals that are added are used by the plants. Some minerals get into streams or lakes. Identify the part of the water cycle that takes minerals into a lake.



A Condensation

B Evaporation

C Precipitation

D Collection

Q28. Electromagnets can be used to separate materials at recycling centers. Identify each of the tasks at the recycling center that an electromagnet is designed to help perform.

A Sorting materials

B Moving large objects

C Recycling materials

D Both a and b

Q29. The plants are most likely responding to which factor in the environment?

- A** Light
- B** Water
- C** Oxygen
- D** Carbon dioxide

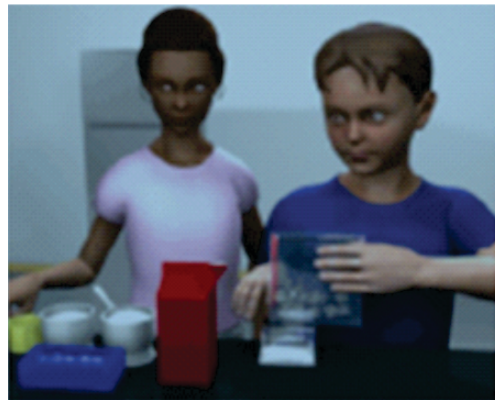
Plants on a Shelf



Q30. This class is going to make ice cream in a bag. They put milk and sugar in a small plastic bag. Then they place the small bag into a large bag of ice. They add salt to the ice, and shake the bag for 5 minutes.

What will happen to the milk when it gets cold?

- A** It will start to melt.
- B** It will become a solid.
- C** It will have less mass.
- D** It will be harder to see.



ICATS English Linguistics Contest 2018 National Toppers

Student Name	Father Name	Grade	School	City
FIMAAAN TASSADDUQUE	ROSHAAN TASSADDUQUE	1	KOHINOOR GRAMMAR SCHOOL	FAISALABAD
MUSA NOOR	NOOR NABI	1	FOUNDATION MONTESSORI SCHOOL	BAHAWALPUR
ZAINA KHAN	MUNAWAR AHMED	1	BEACONHOUSE SCHOOL SYSTEM (BKI F-7/4)	ISLAMABAD
MALIK-AL-ASHTER	KHAN MURTAZA	2	MSB INSTITUTE-SHABBIRABAD	KARACHI
JAWAD ALI	MUHAMMAD ASSAD	2	JOINT STAFF PUBLIC SCHOOL AND COLLEGE CHAKLALA	RAWALPINDI
M. ASAD HUSSAIN	SYED M. ASIF HUSSAIN	2	USMAN PUBLIC SCHOOL SYSTEM (CAMPUS XVI)	KARACHI
HIJAB FATIMA	IRFAN QADIR	3	BEACONHOUSE ALLAMA IQBAL TOWN CAMPUS	LAHORE
ZAINEB NADEEM	NADEEM AFZAL	4	KOHSAR CHILDREN'S ACADEMY	MANSEHRA
MARIA FAISAL	FAISAL SALEEM	5	THE CITY SCHOOL GIRLS BRANCH SATELLITE TOWN	RAWALPINDI
IBRAHIM SALMAN	SALMAN RASOOL	6	LAHORE GRAMMAR SCHOOL FAISAL TOWN BRANCH	LAHORE
KHADIJA IMRAN	IMRAN MAGRANI	7	D. A PUBLIC SCHOOL (O/A LEVELS) SEAVIEW	KARACHI
LAIBA MASOOD	MASOOD ABBAS	8	USMAN PUBLIC SCHOOL SYSTEM (CAMPUS 1)	KARACHI
EMAAN IFTIKHAR	IFTIKHAR AHMAD	9	BEACONHOUSE SCHOOL SYSTEM PTC GIRLS BRANCH	GUJRANWALA
AYESHA NADEEM	MUHAMMAD NADEEM	10	USMAN PUBLIC SCHOOL SYSTEM (CAMPUS VIII)	KARACHI

ICATS Mathematics Contest 2018 National Toppers

Student Name	Father Name	Grade	School	City
AMAN ALI AHMAD	MUHAMMAD WASIM	1	LAHORE GRAMMAR SCHOOL (LANDMARK PROJECT)	LAHORE
MIAN AZAAN MAQBOOL	DANISH MAQBOOL	2	ARMY PUBLIC SCHOOL GARRISON JUNIOR	LAHORE
SHAHEER AFZAL	JAVED AFZAL MARWAT	3	ARMY PUBLIC SCHOOL (TODDLERS ACADEMY)	PESHAWAR
MUHAMMAD AHMED	ASMAT ALI	4	ARMY BURN HALL SCHOOL AND COLLEGE (FOR GIRLS)	ABBOTTABAD
M. MURTAZA ZAIDI	BABER ALI	5	BEACONHOUSE ALLAMA IQBAL TOWN CAMPUS	LAHORE
RAJA SAAD ALI	RAJA AAMIR	6	HITEC SCHOOL & COLLEGE FOR BOYS CANTT	TAXILA
ZAID BIN HAROON	M. HAROON RAFIQUE	7	THE SCIENCE SCHOOL	RAWALPINDI
WALEED AHMED	M. ATIQ	8	KIPS SENIOR BOYS CAMPUS JOHAR TOWN	LAHORE
M. RAYAN ABID	M. ABID MUNEEER	9	SIR SYED SCHOOL AND COLLEGE (CAMPUS IV)	WAH CANTT
IMTIAZ KHAN	DADA KHAN	10	AGA KHAN HIGHER SECONDARY SCHOOL	GILGIT

Compete
if you are the best