

PFLUGERVILLE ISD

Curriculum Department



Science

Grade 7 Science District Assessment 1 2015-2016

7th Grade

District Benchmark
Regular English Version

Student ID

Student Name

Score(S)

Tango Software
Benchmark Appraisal System

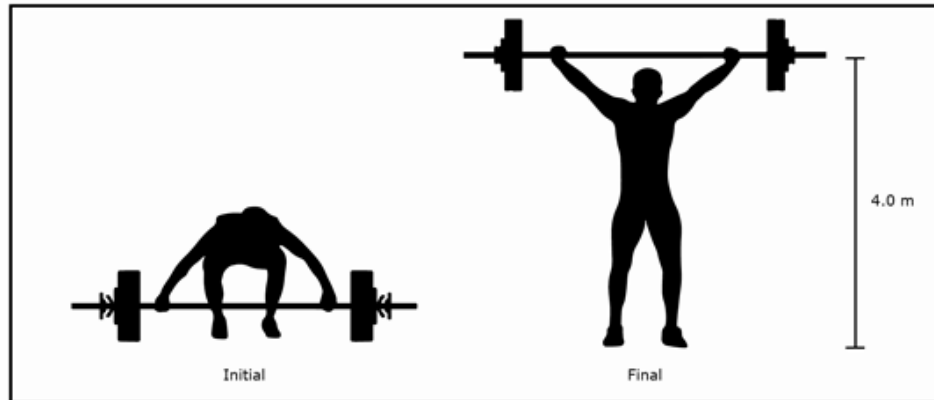
Academic Readiness Assessment

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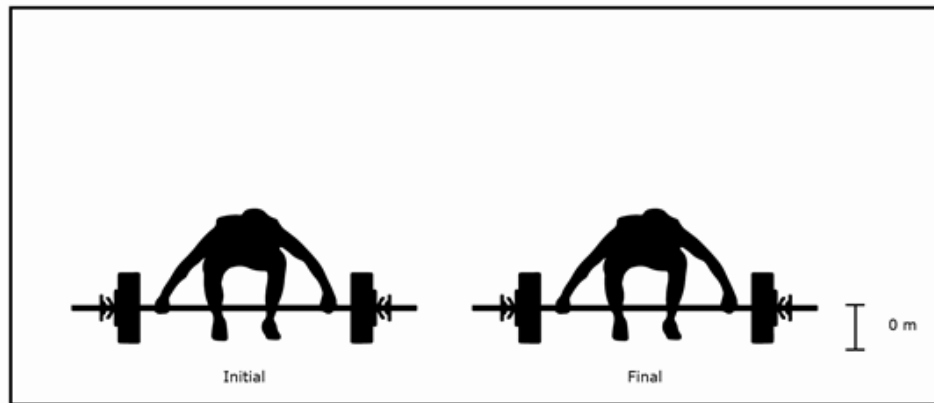
DIRECTIONS

Read each question carefully. For a multiple-choice question, determine the best answer to the question from the four answer choices provided. For a griddable question, determine the best answer to the question. Then fill in the answer on your answer document.

1. A man is trying to lift barbells. He successfully lifts a 350 N barbell, but when he tries to lift a 550 N barbell, he is unsuccessful.



Lifting 350 N

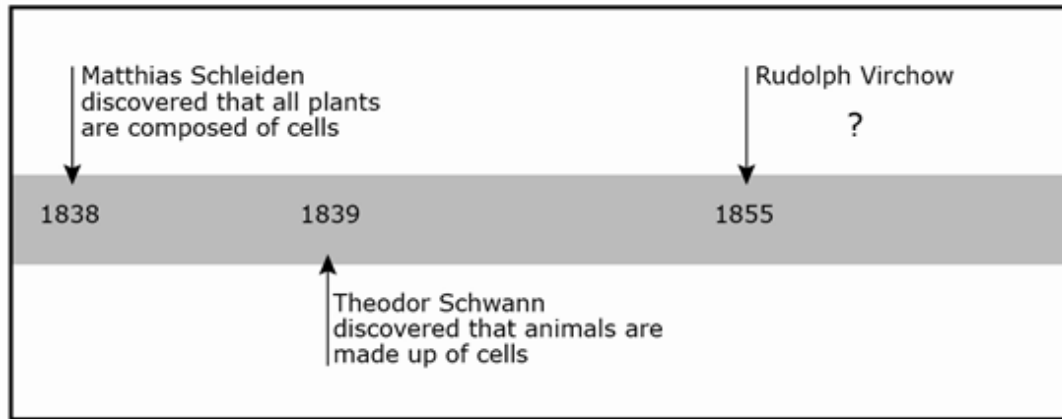


Lifting 550 N

Which of these correctly compares the amount of work the man does on the barbell?

- A. The man does work on the 350 N barbell but does no work on the 550 N barbell.
- B. The man does no work on the 350 N barbell but does work on the 550 N barbell.
- C. The man does work on both the 350 N barbell and the 550 N barbell.
- D. The man does no work on either the 350 N barbell and the 550 N barbell.

2. A timeline is shown below.



Which of the following correctly completes the timeline above?

- F. Discovered that all cells are capable of photosynthesis
- G. Stated that living organisms are not all made of cells
- H. Stated that living cells only come from other living cells
- J. Discovered that all cells have a cell wall

3. Aaron, Rick, and Daryl are cousins. They are the only cousins with red hair and freckles. Where in the cell is the genetic material found that has caused Aaron, Rick, and Daryl to have red hair and freckles?

- A. Within chromosomes in the mitochondrion
- B. Within chromosomes in the nucleus
- C. Within chromosomes in the nuclear membrane
- D. Within chromosomes in vacuoles

4. Corn is made of organic compounds. What are the main elements found in corn?

- F. Carbon, sulfur, calcium
- G. Carbon, magnesium, nitrogen
- H. Carbon, nitrogen, sodium
- J. Carbon, hydrogen, oxygen

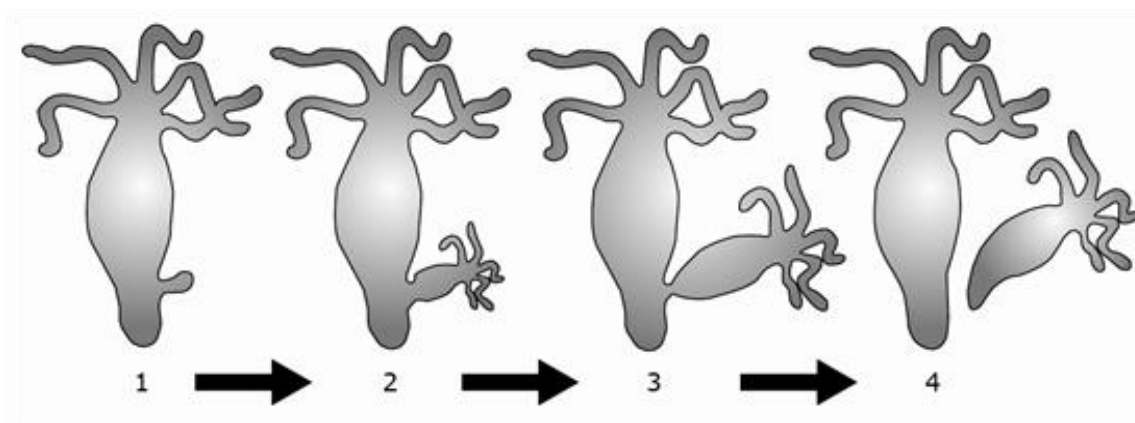
5. A newly discovered cell organelle has the following features.

- Shaped like a kidney
- Surrounded by a double membrane
- Converts glucose into energy

Which existing organelle is most similar to the newly discovered one?

- A. Chloroplast
- B. Mitochondria
- C. Nucleus
- D. Vacuole

6. An image showing the reproduction of hydra (a tiny water animal) is shown below.



Based on the image alone, one can gather that hydra —

- F. reproduces sexually because it took four steps to complete
- G. reproduces both sexually and asexually
- H. reproduces asexually because it did not require a mate for reproduction to take place
- J. reproduces sexually because the process takes very little time

7. Which of the following situations involves the most work being done on an object?

- A. A woman holds a 300 N bar above her head.
- B. A box is pushed with a force of 20 N for 10 meters.
- C. A 70 N watermelon is lifted 2.0 meters onto a truck.
- D. A 2.0 kg rock is rolled a distance of 5 meters.

8. Mrs. James asked her students to write down one advantage for both sexual and asexual reproduction. Which of the following students is correct?

F.

Sam

- Sexual Reproduction: Diversity (variety) of offspring
- Asexual Reproduction: Can increase population rapidly

G.

Alan

- Sexual Reproduction: Slower population growth
- Asexual Reproduction: Can increase population rapidly

H.

Piper

- Sexual Reproduction: Requires a mate to reproduce
- Asexual Reproduction: Can increase population rapidly

J.

Marla

- Sexual Reproduction: Diversity (variety) of offspring
- Asexual Reproduction: Reproduce genetically identical to parents

9. Three husky puppies come from the same litter. They all have a similar appearance (look) but different color markings on their face and body.



Which of these cell components (parts) are most involved in determining the color markings in each puppy?

- A. Chromosomes, chloroplasts, and cytoplasm
- B. Nucleus, chromosomes, and vacuoles
- C. Cytoplasm, genes, and chloroplasts
- D. Genes, chromosomes, and nucleus

10. A list of compounds is shown below.

- $C_5H_{12}O_5$
- Sb_2O_3
- $C_{14}H_{10}O$
- CuO
- C_3H_5NO
- $C_6H_{10}O_4$
- $C_4H_7N_5$
- $Na_2S_2O_8$

How many compounds in the list above are organic?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

11. A student made the following study guide for his test.

| Organelle | Plant Cell | Animal Cell |
|---------------|---|---|
| Cell membrane | Support, protect, controls movement of material in and out, maintains homeostasis | Support, protect, controls movement of material in and out, maintains homeostasis |
| Cell wall | Allows water, oxygen, and carbon dioxide to pass in and out of cell | ? |
| Cytoplasm | Supports and protects organelles | Supports and protects organelles |

Which of the following completes the student's study guide?

- A. Allows water, oxygen, and carbon dioxide to pass in and out of cell
- B. Outer layer, rigid, strong, and stiff
- C. Does not exist
- D. Made of cellulose

12. Which of the following supports the cell theory?

- F. Some cells have cytoplasm.
- G. All cells have a region of DNA.
- H. Some cells are living.
- J. All cells have a cell wall.

- 13.** Scientists found four areas around a hydrothermal vent (an opening in the sea floor where heated water flows) that they thought could support life. The scientists took samples of the elements in the area.

| Area | List of Elements in the Area |
|------|------------------------------|
| 1 | Sulfur, Hydrogen, Plutonium |
| 2 | Carbon, Hydrogen, Nitrogen |
| 3 | Oxygen, Hydrogen, Calcium |
| 4 | Carbon, Iron, Sodium |

Based on the data table, which area would have the best chance at having organic compounds?

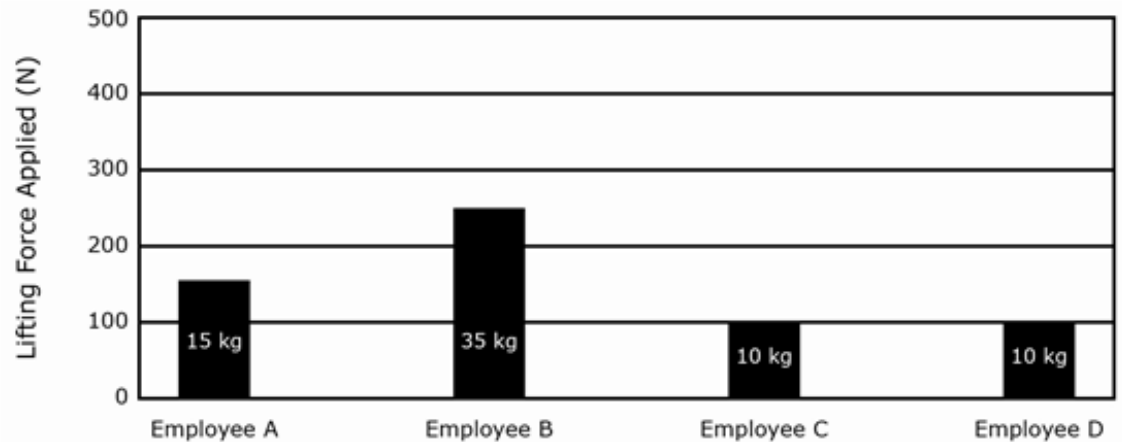
- A.** Area 1
- B.** Area 2
- C.** Area 3
- D.** Area 4

-
- 14.** Amanda and Sally are sisters. Both of their parents have brown eyes. Amanda has green eyes, and Sally has blue eyes. The difference in eye color is an example of what characteristic of sexual reproduction?

- F.** The offspring are genetically identical to their parents.
- G.** The offspring are genetically different from the parents.
- H.** Sexual reproduction is not as rapid as asexual reproduction.
- J.** Sexual reproduction is just as rapid as asexual reproduction.

15. Four employees at Safety Mart moved containers of medical supplies. The graph shows the amount of force used to lift the containers. The numbers in the bars show the mass of each container. The results for each employee are shown in the table.

Data for Employees

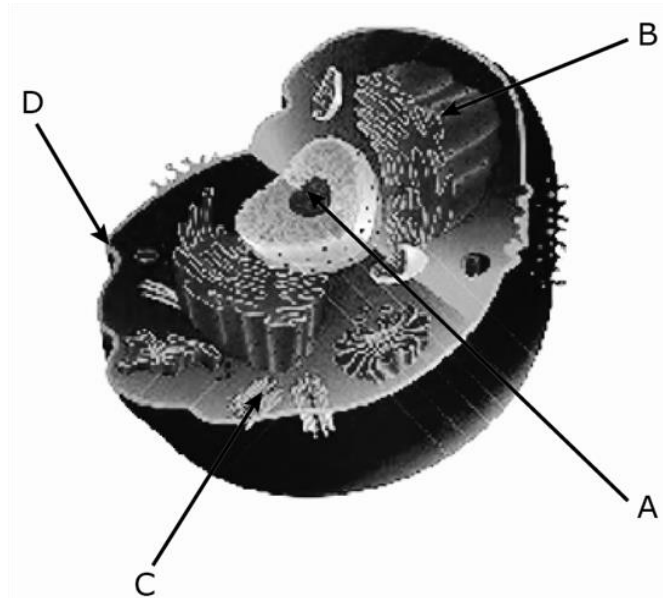


| Employee | Result of Lifting Force |
|----------|---|
| A | The container was raised 2m to a shelf. |
| B | The container was too heavy to lift even after three tries. |
| C | The container was raised 3.5m to a table. |
| D | The container was raised 1m to a shelf. |

Based on this information, which employee did NOT do any work on a container?

- A. Employee A
- B. Employee B
- C. Employee C
- D. Employee D

16. A diagram of a cell is shown below.



Where are inherited traits of individuals governed (controlled)?

- F. A
- G. B
- H. C
- J. D

17. Within a human being, many cell types are present. Cells from two different areas of the body —

- A. produce energy on their own
- B. contain cell walls
- C. have the same size and shape like all cells that exist
- D. require food from other organisms and cannot make their own energy

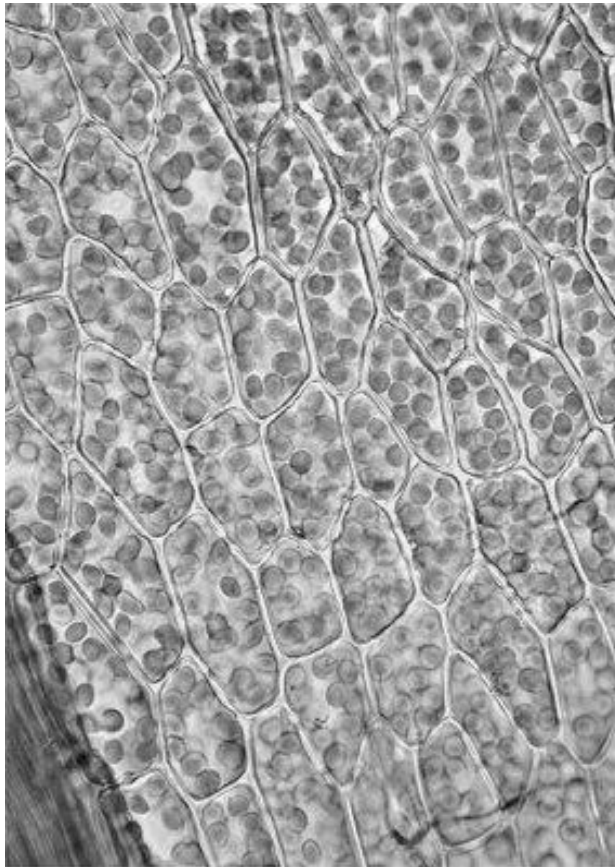
Short Answer

DIRECTIONS

Answer the following question in the box labeled "Short Answer 1" on your answer document using complete sentences.

Under a microscope, the following observations are made regarding a cell.

1. The cell is roughly rectangular in shape.
2. There is a large area that contains water.
3. A nucleus is present.



What type of cell is this?

Give two pieces of evidence to justify your claim.



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Student Code: _____ Score: _____

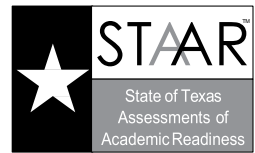
E | SHORT ANSWER 1

Document ID:

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YOU MAY USE ALL 10 LINES TO RESPOND TO THE PROMPT, BUT YOU MAY NOT WRITE MORE THAN 10 LINES.
YOU MAY NOT ADD LINES OR WRITE OUTSIDE THE BOX.

STAAR GRADE 8 SCIENCE REFERENCE MATERIALS



$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

$$D = \frac{m}{V}$$

$$\text{Average speed} = \frac{\text{total distance}}{\text{total time}}$$

$$s = \frac{d}{t}$$

$$\text{Net force} = (\text{mass})(\text{acceleration})$$

$$F = ma$$

$$\text{Work} = (\text{force})(\text{distance})$$

$$W = Fd$$

STAAR GRADE 8 SCIENCE REFERENCE MATERIALS

PERIODIC TABLE OF THE ELEMENTS

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|--|---|--|--|---|--|--|---|---|--|--|--|---------------------------------------|--|--|---------------------------------------|--------------------------------------|----------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|
| | Atomic number — 14 Symbol — Si Atomic mass — 28.086 Silicon — Name | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 1A | | | | | | | | | | | | | | | | | 18 8A | | | | | | |
| 1 | 1 H 1.008 Hydrogen | | | | | | | | | | | | | | | | | 2 He 4.003 Helium | | | | | | |
| 2 | 3 Li 6.941 Lithium | 4 Be 9.012 Beryllium | | | | | | | | | | | | | | | | | 5 B 10.812 Boron | 6 C 12.011 Carbon | 7 N 14.007 Nitrogen | 8 O 15.999 Oxygen | 9 F 18.998 Fluorine | 10 Ne 20.180 Neon |
| 3 | 11 Na 22.990 Sodium | 12 Mg 24.305 Magnesium | 3 B | 4 B | 5 B | 6 B | 7 B | 8 B | 9 B | 10 B | 11 B | 12 B | 13 Al 26.982 Aluminum | 14 Si 28.086 Silicon | 15 P 30.974 Phosphorus | 16 S 32.066 Sulfur | 17 Cl 35.453 Chlorine | 18 Ar 39.948 Argon | | | | | | |
| 4 | 19 K 39.098 Potassium | 20 Ca 40.078 Calcium | 21 Sc 44.956 Scandium | 22 Ti 47.867 Titanium | 23 V 50.942 Vanadium | 24 Cr 51.996 Chromium | 25 Mn 54.938 Manganese | 26 Fe 55.845 Iron | 27 Co 58.933 Cobalt | 28 Ni 58.693 Nickel | 29 Cu 63.546 Copper | 30 Zn 65.38 Zinc | 31 Ga 69.723 Gallium | 32 Ge 72.64 Germanium | 33 As 74.922 Arsenic | 34 Se 78.96 Selenium | 35 Br 79.904 Bromine | 36 Kr 83.798 Krypton | | | | | | |
| 5 | 37 Rb 85.468 Rubidium | 38 Sr 87.62 Strontium | 39 Y 88.906 Yttrium | 40 Zr 91.224 Zirconium | 41 Nb 92.906 Niobium | 42 Mo 95.96 Molybdenum | 43 Tc (98) Technetium | 44 Ru 101.07 Ruthenium | 45 Rh 102.906 Rhodium | 46 Pd 106.42 Palladium | 47 Ag 107.868 Silver | 48 Cd 112.412 Cadmium | 49 In 114.818 Indium | 50 Sn 118.711 Tin | 51 Sb 121.760 Antimony | 52 Te 127.60 Tellurium | 53 I 126.904 Iodine | 54 Xe 131.294 Xenon | | | | | | |
| 6 | 55 Cs 132.905 Cesium | 56 Ba 137.328 Barium | 71 Lu 174.967 Lutetium | 72 Hf 178.49 Hafnium | 73 Ta 180.948 Tantalum | 74 W 183.84 Tungsten | 75 Re 186.207 Rhenium | 76 Os 190.23 Osmium | 77 Ir 192.217 Iridium | 78 Pt 195.085 Platinum | 79 Au 196.967 Gold | 80 Hg 200.59 Mercury | 81 Tl 204.383 Thallium | 82 Pb 207.2 Lead | 83 Bi 208.980 Bismuth | 84 Po (209) Polonium | 85 At (210) Astatine | 86 Rn (222) Radon | | | | | | |
| 7 | 87 Fr (223) Francium | 88 Ra (226) Radium | 103 Lr (262) Lawrencium | 104 Rf (267) Rutherfordium | 105 Db (268) Dubnium | 106 Sg (271) Seaborgium | 107 Bh (272) Bohrium | 108 Hs (270) Hassium | 109 Mt (276) Meitnerium | 110 Ds (281) Darmstadtium | 111 Rg (280) Roentgenium | Mass numbers in parentheses are those of the most stable or most common isotope. | | | | | | | | | | | | |

Lanthanide Series

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|---|--------------------------------------|--|---|--|---------------------------------------|--|---|---------------------------------------|--|---------------------------------------|--------------------------------------|---------------------------------------|---|
| 57 La 138.905 Lanthanum | 58 Ce 140.116 Cerium | 59 Pr 140.908 Praseodymium | 60 Nd 144.242 Neodymium | 61 Pm (145) Promethium | 62 Sm 150.36 Samarium | 63 Eu 151.964 Europium | 64 Gd 157.25 Gadolinium | 65 Tb 158.925 Terbium | 66 Dy 162.500 Dysprosium | 67 Ho 164.930 Holmium | 68 Er 167.259 Erbium | 69 Tm 168.934 Thulium | 70 Yb 173.055 Ytterbium |
|---|--------------------------------------|--|---|--|---------------------------------------|--|---|---------------------------------------|--|---------------------------------------|--------------------------------------|---------------------------------------|---|

Actinide Series

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|--------------------------------------|---------------------------------------|--|--------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|------------------------------------|---------------------------------------|---|---|--------------------------------------|--|---------------------------------------|
| 89 Ac (227) Actinium | 90 Th 232.038 Thorium | 91 Pa 231.036 Protactinium | 92 U 238.029 Uranium | 93 Np (237) Neptunium | 94 Pu (244) Plutonium | 95 Am (243) Americium | 96 Cm (247) Curium | 97 Bk (247) Berkelium | 98 Cf (251) Californium | 99 Es (252) Einsteinium | 100 Fm (257) Fermium | 101 Md (258) Mendelevium | 102 No (259) Nobelium |
|--------------------------------------|---------------------------------------|--|--------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|------------------------------------|---------------------------------------|---|---|--------------------------------------|--|---------------------------------------|