



RELEASED ITEMS

**SCIENCE
GRADE 5**

Fall 2008

**MICHIGAN STATE BOARD OF EDUCATION
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PART 1

DIRECTIONS

This test includes both multiple-choice and written-response questions. For the multiple-choice questions, use only a No. 2 pencil to mark your answers. Make a dark mark that completely fills the corresponding circle in your **Answer Document**. If you are not sure of the answer to a question, mark your best choice and go on to the next question. If you change an answer, be sure to erase the first mark completely. Mark only one answer for each question.

The written-response questions require you to write sentences or paragraphs in your **Answer Document**. Try to show all that you know about the topics by writing as much as you can in response to the questions you are asked. Make sure you at least attempt to answer each question. Use a No. 2 pencil to record your written responses in the **Answer Document**. Respond only on the lines or in the spaces provided. Make sure the number of the question corresponds to the number in the **Answer Document**.

If you finish early, you may check your work for Part 1 only. Do **NOT** work on Part 2 of this test until you are told to do so.

- 1 Michigan's blue heron can often be seen in shallow water such as marshes, ponds, and streams. They feed on fish, frogs, and other small animals.



Which of the following observable characteristics helps a blue heron to find food?

- A thick feathers
 - B long beak
 - C strong wings
 - D light color
- 2 Select the statement which best explains why a cut flower placed in water dies within a few days
- A Incorrect statement involving a process that does not provide food to the flower
 - B Incorrect statement indicating lack of air for the rose
 - C Incorrect statement indicating where a rose must be located to obtain water and light from the Sun
 - D Correct Answer

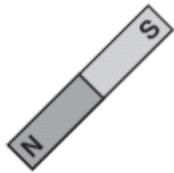
- 3 Select the best reason why an organism is a renewable resource
- A Selected a reason not specific to a renewable resource
 - B Selected a reason not specific to a renewable resource
 - C Selected a reason indicating that a renewable resource has only limited application
 - D Correct answer
- 4 Identify the reason how 1 family of organisms differs from a different family of organisms
- A Selected a characteristic that could be common to both families
 - B Correct answer
 - C Selected a characteristic that is common to both families
 - D Selected a characteristic that could be common to both families
- 5 Animals have characteristics that help them survive. Which of these characteristics would *best* help an animal carry prey back to its nest?
- A thick fur
 - B large eyes
 - C flat tail
 - D strong wings
- 6 Based on the given situation described using heat energy, choose the reason why using a tool made of this material is safer than using the same tool made of another material
- A Selected the wrong reason
 - B Selected the wrong reason
 - C Correct answer
 - D Selected the wrong reason

- 7 From the list provided, select phenomena that can travel great distances and is used to study stars.
- A Correct answer
 - B Chose a phenomena that is not applicable for the task described
 - C Chose a phenomena that is not applicable for the task described
 - D Chose a phenomena that is not applicable for the task described

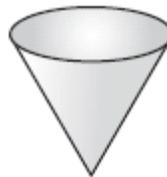
- 8 A student has a mixture of sand, rocks, and iron shavings. He wants to separate them into three piles: sand, rocks, and iron shavings.



Sieve



Magnet



Filter paper



Magnifying glass

Which tools should be used to separate the mixture into the three piles?

- A filter paper and magnifying glass
- B sieve and magnet
- C magnet and filter paper
- D sieve and magnifying glass

- 9 Using 3 illustrated objects, identify the 3 properties all objects have in common
- A Chose a list of 3 properties where 1 property is not common to any of the objects
 - B Chose a list of 3 properties where 1 property is not common to any of the objects
 - C Chose a list of 3 properties where 2 properties are not common to any of the objects
 - D Correct answer
- 10 Sarah's parents cannot lift a washing machine up a stairway. Sarah tells her parents it will be easier to move the machine if they make a ramp and push the machine up the ramp. Which kind of simple machine is Sarah suggesting they use?
- A wedge
 - B wheel and axle
 - C lever
 - D inclined plane
- 11 Based on the description of an investigation, select the best description of a student's activity during the 1st week of the investigation
- A Correct answer
 - B Incorrectly chose the student's described activity
 - C Incorrectly chose the student's described activity
 - D Incorrectly chose the student's described activity

- 12** Based on data provided in a graph, use the data to estimate future data based on the trend in the data
- A** Did not select the best value based on data trend
 - B** Did not select the best value based on data trend
 - C** Did not select the best value based on data trend
 - D** Correct answer
- 13** Based on the situation described and a data table, determine which outcome answers the question about the event
- A** Chose answer that does not satisfy the question
 - B** Chose answer that does not satisfy the question
 - C** Correct answer
 - D** Chose answer that does not satisfy the question

Use the information below to answer questions 14 through 17.

A farmer in Michigan wants to increase the amount of corn her fields will produce in order to increase her profits. She divided a large field into four equal sections. She planted a different type of corn seed in each section. She recorded the following observations of her corn crop.

	Corn Seed A	Corn Seed B	Corn Seed C	Corn Seed D
Rainfall recorded	5 inches	5 inches	5 inches	5 inches
Fertilizer applied	10 kg	10 kg	7 kg	7 kg
Water applied by sprinkler	25 gallons a day	0 gallons a day	0 gallons a day	0 gallons a day
Corn produced	300 Kg	150 Kg	110 Kg	300 Kg

- 14 Which *best* explains a function of the roots of a corn plant?
- A absorb sunlight for the plant
 - B take in water for the plant
 - C attract insects to pollinate the plant
 - D produce seeds to grow new plants
- 15 Farmers often need to water their corn crops. Which of the following is **NOT** a source of water for the farmer’s crop of corn?
- A a slow moving river
 - B freshwater from a lake
 - C underground water
 - D a swimming pool
- 16 Which of these should the farmer do in order to *best* protect the wildlife and environment near her cornfields?
- A Use a strong insecticide to remove insects from the cornfield.
 - B Eliminate all organisms that might feed on the corn plants.
 - C Keep the cornfield’s fertilizer from washing into ponds.
 - D Remove soil from the fields after the corn is harvested.
- 17 After the farmer recorded her results, she reviewed them to make a decision.
- Based on data in the table, which corn seed will *best* meet the needs of the farmer?
 - Explain two reasons why the farmer should use that seed.

- 18** Which of the following is an example of correctly using a scientific tool?
- A** A scale can be used to measure the length of pond snails.
 - B** A graduated cylinder can be used to collect pond snails.
 - C** A hand lens can be used to observe how pond snails move.
 - D** A microscope can be used to measure the weight of a pond snail.
- 19** Given a situation and a data table, correctly select the graph that best represents the information in the data table
- A** Graph does not correspond to data table
 - B** Correct answer
 - C** Graph does not correspond to data table
 - D** Graph does not correspond to data table
- 20** Given a conclusion based on observation, select which concepts one would gather to best support his or her conclusion
- A** Incorrectly selected a concept that does not provide best support for a conclusion
 - B** Incorrectly selected a concept that does not provide best support for a conclusion
 - C** Incorrectly selected a concept that does not provide best support for a conclusion
 - D** Correct answer

21 Sue made this list:

- give old clothes to sister
- refill empty water bottles
- start bringing a lunch box to school

Which type of conservation is she practicing?

- A** reduce
- B** reuse
- C** recycle
- D** report
-
- 22 Thunderstorms often drop massive amounts of rain in a very short time. Which of these *best* describes the path that rainwater falling on a city is *most likely* to take?
- A** ocean, stream, land, river
- B** land, river, ocean, stream
- C** stream, river, ocean, land
- D** land, stream, river, ocean

- 23** Emily and her basketball team are practicing outside when they see lightning flash in the sky nearby. They predict it is going to start raining soon.

The safest thing for the team to do is to

- A** keep practicing, but stop if it starts raining too hard.
 - B** keep practicing, but listen to the radio for a weather report.
 - C** stop practicing, and stand under a tree until the storm passes.
 - D** stop practicing, and go inside a building until the storm passes.
- 24** As described, select from the list provided a property which is common for both the Earth and its moon
- A** Correct answer
 - B** Incorrectly selected a property of Earth not applicable to its moon
 - C** Incorrectly selected a property of Earth not applicable to its moon
 - D** Incorrectly selected a property of Earth not applicable to its moon

PART 2

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- 25** Given one of Earth's natural resources, identify the product that man obtains from this resource
- A** Correct answer
 - B** Incorrectly chose a product not obtained from this resource
 - C** Incorrectly chose a product not obtained from this resource
 - D** Incorrectly chose a product not obtained from this resource
- 26** In a large city, the rain falling on the streets most likely will
- A** gather in puddles to make lakes.
 - B** soak into the ground to make new rivers.
 - C** be carried away by underground drains.
 - D** be carried away by passing cars.
- 27** Select the statement which best explains why some birds and butterflies found in Michigan migrate south for the winter
- A** Correct answer
 - B** Chose an answer that has no substance in fact or observation
 - C** Chose an answer applicable to some organisms that stay in Michigan during the winter
 - D** Chose an answer that has no substance in fact or observation for birds or butterflies
- 28** Select the correct statement in reference to motion of Sun, Earth, and moon
- A** Chose an incorrect statement about Sun and moon
 - B** Correct statement
 - C** Chose an incorrect statement about Sun and moon
 - D** Chose an incorrect statement about Sun and moon

- 29 The Sun and a full moon appear to be about the same size. Which answer *best* describes the reason for this observation?
- A The Sun is farther away than the moon.
 - B The moon and the Sun are the same size.
 - C As the moon orbits Earth, it gets closer.
 - D As Earth rotates, it gets closer to the Sun.
- 30 Among the 4 options provided, select the most appropriate safety behavior during a tornado
- A Chose a behavior having no safety value
 - B Correct answer
 - C Chose a behavior having minimal safety value
 - D Chose a behavior having no safety value
- 31 Students are designing an electrical circuit. Which of the following could be used to conduct electricity in the circuit?
- A metal foil
 - B glass tube
 - C rubber band
 - D plastic straw

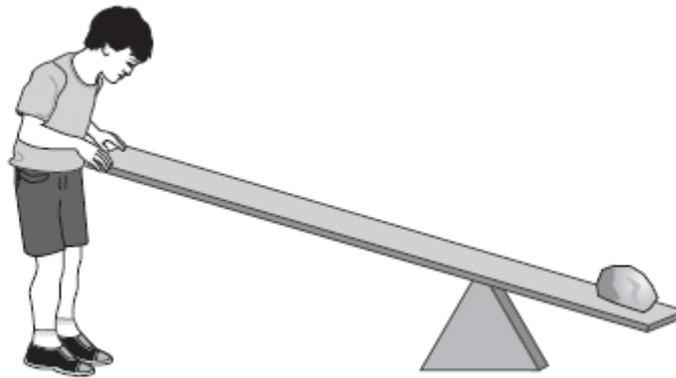
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What will happen when the two magnets above are moved closer together?

- A Magnetic force will push the magnets apart.
- B Gravitational force will pull the magnets together.
- C Gravitational force will push the magnets apart.
- D Magnetic force will pull the magnets together.

- 33** From the 4 pairs of items listed, select the pair of items which are both attracted to a magnet
- A** Chose a pair neither of which are attracted to a magnet
 - B** Chose a pair where only 1 is attracted to a magnet
 - C** Correct answer
 - D** Chose a pair neither of which are attracted to a magnet
- 34** Robert wants to lift a heavy rock.



Why should he use the lever to lift the rock?

- A** Less effort is needed to lift the rock with a lever than is needed to pick up the rock by hand.
- B** The lever uses the same effort to lift the rock as picking up the rock by hand.
- C** More effort is needed to lift the rock with the lever than is needed to pick up the rock by hand.
- D** Larger rocks can more easily be picked up by hand than can be lifted with the lever.

- 35 For a shadow to be created, it must have
- A a window, an object, and a blocked path.
 - B a light source, a window, and an object.
 - C a light source, an object, and a blocked path.
 - D a shaded tree, a light source, and an object.
- 36 Given the situation and description of student activities, select the activity which did not require use of technology
- A Chose an activity requiring use of technology
 - B Chose an activity requiring use of technology
 - C Correct answer
 - D Chose an activity requiring use of technology

- 37 The average American uses between 80 and 100 gallons of water a day. The table below shows how much water is used for daily activities.

PERSONAL WATER USE

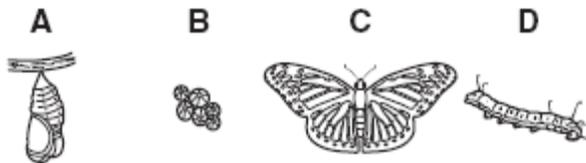
Flushing the Toilet	Washing Dishes by Hand	Running the Dishwater	Taking a Shower, Low-flow Head	Taking a Shower, High-flow Head	Taking a Bath
5 gallons	10 gallons	15 gallons	25 gallons	50 gallons	40 gallons

According to the table, the greatest amount of water would be saved by taking

- A time to wash dishes by hand instead of running the dishwasher.
- B a shower with a high-flow head instead of a low-flow head.
- C a shower with a low-flow head instead of a high-flow head.
- D a bath instead of a shower with a low-flow head.

- 38 A school playground has an overpopulation of squirrels. What is the *best* source to find out how to move the squirrels?
- A Interview people attending the school.
 - B Look up “squirrel habitat” on the Internet.
 - C Plan a field trip to a zoo to watch squirrels.
 - D Seek the opinions of other students.
- 39 Student collected data on animals seen during a trip to the park; given the data, identify the best table arrangement of the data
- A Chose a table that misclassified animals
 - B Chose a table that inaccurately listed animal counts
 - C Chose a table that misclassified animals
 - D Correct answer
- 40 When the environment is changed, an animal’s habitat can be affected. A new school is being built in an open field near a wooded area. Students are concerned about a group of rabbits that live in the open field.
- Tell one way the rabbits’ habitat will change after the school is built.
 - List two things that can be done to help the rabbits survive in the new habitat.
- 41 Given a task to gather information about resources in a community, chose the best method to determine resource quality
- A Incorrectly chose an information source likely not to have necessary information
 - B Incorrectly chose to study a process not related to the task at hand
 - C Correct answer
 - D Incorrectly chose to use a global, non-community based reference about the resource

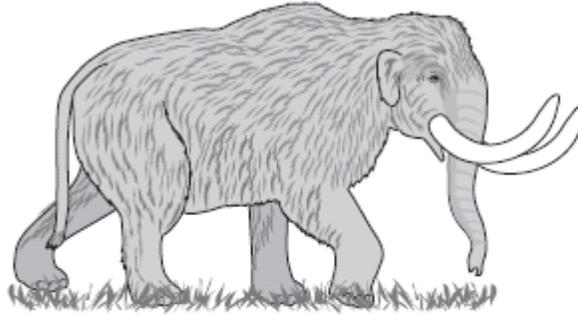
- 42 Given the described task, choose the best investigation methods by which to determine whether the described effect occurs
- A Correct answer
 - B Chose a procedure that did not measure the process using the substance in question for the investigation
 - C Chose a procedure that measured an effect not relevant to the purpose of the investigation
 - D Chose a measure that would provide insufficient data to determine whether the effect occurs
- 43 Identify a factor from those listed that would likely increase a population in a specific location
- A Chose a factor that would likely decrease the rabbit population
 - B Chose a factor that would likely decrease the rabbit population
 - C Chose a factor that would likely decrease the rabbit population
 - D Correct answer
- 44 The images show the stages in the life cycle of a butterfly.



The correct order of the life cycle of the butterfly is

- A B, A, D, C.
- B B, D, A, C.
- C D, C, B, A.
- D A, B, D, C.

- 45 The fossils of many mastodons have been discovered in Michigan.



Mastodon

The fact that so many mastodon fossils have been found but no living mastodons have been found anywhere is evidence that mastodons are

- A threatened.
 - B endangered.
 - C extinct.
 - D protected.
- 46 Many farmers leave a 15-meter strip of tall grass between farm fields and river banks. The tall grass
- A keeps the soil in the field from eroding into the river.
 - B contains seeds that the farmer might need later.
 - C can be used to help people climb out of the river.
 - D decreases the habitat available for wildlife.

47 Which of the following are renewable resources?

- A coal and oil
- B wool and coal
- C trees and wool
- D oil and trees

Scoring Key: Part 1

Item Number	Correct Answer	Standard/ Benchmark	Description
1	B	L.5.e.1	Food webs
2	D	L.2.e.5	Functions of seed plant parts
3	D	L.5.e.4	Human effects on the environment
4	B	L.2.e.2	Classify familiar organisms
5	D	L.4.e.2	Adaptations
6	C	P.1.e.2	Useful properties
7	A	P.1.e.3	Forms of energy
8	B	P.2.e.2	Mixtures
9	D	P.1.e.1	Classify substances
10	D	P.3.e.5	How simple mechanical devices work
11	A	C.1.e.2	Observe, investigate, reason
12	D	C.1.e.2	Observe, investigate, reason
13	C	R.1.e.1	Need for evidence
14	B	L.2.e.5	Functions of seed plant parts
15	D	E.2.e.3	Sources and uses of water
16	C	R.1.e.4	Uses of technology
17	E	C.1.e.2	Observe, investigate, reason
18	C	C.1.e.3	Use scientific tools
19	B	C.1.e.6	Charts and graphs
20	D	R.1.e.1	Need for evidence
21	B	E.1.e.6	Conserve resources and reduce pollution
22	D	E.1.e.2	Earth materials
23	D	E.3.e.3	Safety precautions in bad weather
24	A	E.4.e.1	Sun, moon, Earth

Scoring Key: Part 2

Item Number	Correct Answer	Standard/ Benchmark	Description
25	A	E.1.e.5	Uses of Earth materials
26	C	E.2.e.1	Water in 3 states
27	A	E.3.e.2	Seasons in Michigan
28	B	E.4.e.2	Motions of Earth and moon
29	A	E.4.e.1	Sun, moon, Earth
30	B	E.3.e.3	Safety precautions in bad weather
31	A	P.1.e.2	Useful properties
32	D	P.3.e.3	Magnetic interactions
33	C	P.3.e.3	Magnetic interactions
34	A	P.3.e.5	How simple mechanical devices work
35	C	P.4.e.4	Shadows
36	C	R.1.e.3	Awareness and sensitivity to natural world
37	C	C.1.e.2	Observe, investigate, reason
38	B	C.1.e.5	Gather information
39	D	C.1.e.6	Charts and graphs
40	E	R.1.e.4	Uses of technology
41	C	C.1.e.2	Observe, investigate, reason
42	A	C.1.e.2	Observe, investigate, reason
43	D	L.5.e.4	Human effects on the environment
44	B	L.2.e.3	Life cycles
45	C	L.4.e.1	Fossils
46	A	E.4.e.2	Motions of Earth and moon
47	C	L.5.e.4	Human effects on the environment