

We are interested in your opinions about science and engineering in this survey. Please answer each question honestly. Mark how strongly you agree or disagree after each statement. Thank you very much!

	Strongly Disagree	Disagree Somewhat	Not Sure	Agree Somewhat	Strongly Agree
1. I would enjoy being a scientist when I grow up.	0	1	2	3	4
2. I would enjoy being an engineer when I grow up.	0	1	2	3	4
3. I would like a job where I could invent things.	0	1	2	3	4
4. I would like to help plan bridges, skyscrapers, and tunnels.	0	1	2	3	4
5. I would like a job that lets me design cars.	0	1	2	3	4
6. I would like to build and test machines that could help people walk.	0	1	2	3	4
7. I would enjoy a job helping to make new medicines.	0	1	2	3	4
8. I would enjoy a job helping to protect the environment.	0	1	2	3	4
9. Science has nothing to do with real life.	0	1	2	3	4
10. Math has nothing to do with real life.	0	1	2	3	4
11. I would like a job that lets me figure out how things work.	0	1	2	3	4
12. I like thinking of new and better ways of doing things.	0	1	2	3	4
13. I like knowing how things work.	0	1	2	3	4
14. I am good at putting things together.	0	1	2	3	4
15. Scientists cause problems in the world.	0	1	2	3	4
16. Engineers cause problems in the world.	0	1	2	3	4
17. Scientists help make people's lives better.	0	1	2	3	4
18. Engineers help make people's lives better.	0	1	2	3	4
19. I think I know what scientists do for their jobs.	0	1	2	3	4
20. I think I know what engineers do for their jobs.	0	1	2	3	4
	Strongly Disagree	Disagree Somewhat	Not Sure	Agree Somewhat	Strongly Agree



"Designing Bridges" Unit Assessment

Today the date is:		
MONTH	DAY	YEAR
<input type="radio"/> January		<input type="radio"/> 2006
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Marking Instructions	
<ul style="list-style-type: none"> Use a No. 2 pencil or a blue or black ink pen only. Do not use pens with ink that soaks through the paper. Make solid marks that fill the response completely. Make no stray marks on this form. 	
CORRECT: ●	INCORRECT: ☒ ☓ ☉ ☪

For each sentence below, fill in the bubble for the word that **BEST** completes the sentence.

1. The car needs to travel along the _____ of the bridge.

- A pier
- B span
- C abutment

2. An arch bridge is usually _____ a beam bridge of the same length.

- A stronger than
- B the same strength as
- C weaker than

For questions 3 to 7, mark the **BEST** answer.

3. At work, a civil engineer is **MOST** likely to

- A fix engines.
- B drive a crane.
- C repair roads.
- D design buildings.

My initials:		
FIRST	MIDDLE	LAST
A	A	A
B	B	B
C	C	C
D	D	D
E	E	E
F	F	F
G	G	G
H	H	H
I	I	I
J	J	J
K	K	K
L	L	L
M	M	M
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P	P	P
Q	Q	Q
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Y	Y	Y
Z	Z	Z

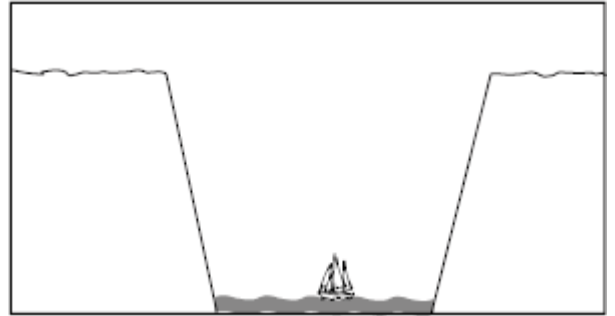
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I was born in:
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7 7 7 7 7 7	7 7 7 7 7 7
8 8 8 8 8 8	8 8 8 8 8 8
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4. A highway needs to cross a wide canyon. Civil engineers are designing a bridge to cross the canyon that can hold heavy loads. The canyon is too deep to build supports that reach the water. What kind of bridge would be best to use?

- A a beam bridge
- B an arch bridge
- C a suspension bridge
- D It is not possible to build a bridge.

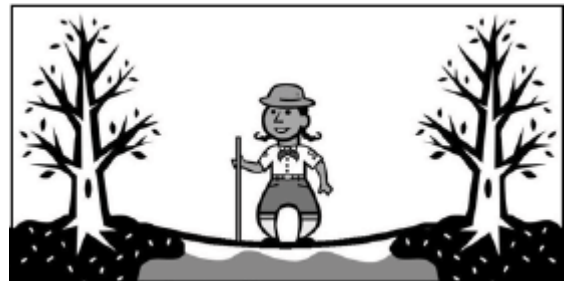


5. Mrs. Slater's class has a nature park behind their school with a narrow stream that crosses the path they like to walk on. They want to build a bridge across the stream that is easy to make and not expensive. What kind of bridge would be best for them to build?

- A a beam bridge
- B an arch bridge
- C a suspension bridge
- D It is not possible to build a bridge.

6. Maria placed a board across a stream to make a bridge, but her bridge sagged when she stood on it. What should she do to improve her bridge?

- A Support the ends.
- B Support the middle.
- C Put some thick cardboard on top.
- D Put rocks on the ends.



7. What kinds of bridges are these? Mark ONE answer for each bridge.



- A beam bridge
- B arch bridge
- C suspension bridge



- A beam bridge
- B arch bridge
- C suspension bridge



- A beam bridge
- B arch bridge
- C suspension bridge

3. Soil is a mixture of many substances. It may include

- A sun, water, clay and sand.
- B sand, clay, plastic, and pebbles.
- C sand, clay, dead plants, and dead animals.
- D leaves, twigs, sun, and pebbles.

4. Tatiana is making a chair. What would be the BEST material to use if she wants to make a...

...waterproof chair?

- A cloth
- B plastic
- C wood
- D brick

...chair that won't move on windy days?

- A cloth
- B plastic
- C wood
- D brick

...soft place to sit?

- A cloth
- B plastic
- C wood
- D brick

For questions 5 and 6 below, mark ALL the correct answers.

5. Tom is a materials engineer. Check ALL of the things that Tom would probably do for his job.

- Make a coating for a bike chain that won't rust in the rain.
- Figure out how butterflies hatch.
- Create a bathing suit material that dries quickly.
- Drive a cement truck.

6. Some things are made from earth materials. Mark ALL of the things below that are made from earth materials.





"Designing Windmills" Unit Assessment

My initials:		
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(A)	(A)	(A)
(B)	(B)	(B)
(C)	(C)	(C)
(D)	(D)	(D)
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(F)	(F)	(F)
(G)	(G)	(G)
(H)	(H)	(H)
(I)	(I)	(I)
(J)	(J)	(J)
(K)	(K)	(K)
(L)	(L)	(L)
(M)	(M)	(M)
(N)	(N)	(N)
(O)	(O)	(O)
(P)	(P)	(P)
(Q)	(Q)	(Q)
(R)	(R)	(R)
(S)	(S)	(S)
(T)	(T)	(T)
(U)	(U)	(U)
(V)	(V)	(V)
(W)	(W)	(W)
(X)	(X)	(X)
(Y)	(Y)	(Y)
(Z)	(Z)	(Z)

I am a:

Girl

Boy

Do Not Mark

0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
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8	8	8	8	8
9	9	9	9	9

I was born in:

MONTH BORN
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Today the date is:

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Marking Instructions

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CORRECT: ● **INCORRECT:** ⊗ ⊘ ⊙ ⊚

For questions 1 to 3, mark the **BEST** answer.

1. Windmills and sailboats:

- (A) make wind.
- (B) use wind energy.
- (C) use solar energy.
- (D) don't need energy to move.

2. Jamal is a mechanical engineer. For his job, Jamal might:

- (A) install wiring in houses.
- (B) repair bicycles.
- (C) predict the weather.
- (D) improve machines.

3. Which of the following does NOT show how hard the wind is blowing?

- (A) a weather vane
- (B) clouds
- (C) an anemometer
- (D) trees

For questions 4 to 6, fill in **ALL** of the bubbles for **ALL** of the correct answers.

4. Shara is making a windmill, but cannot make it spin. She makes the blades bigger, but it still does not spin. Mark **ALL** of the things that she could do next that would work to improve her windmill.

- Add more blades.
- Put holes in the blades to let air through.
- Change the materials the blade are made of.
- Change the angle of the blades.

5. Which of these machines do the same kind of work (cutting) as a pair of scissors?

pliers



garden shears



kitchen knife



vegetable peeler



hair curling iron



tongs



6. Which of these machines have parts that you would move in the same way as a pair of scissors?

pliers



garden shears



kitchen knife



vegetable peeler



hair curling iron



tongs





"Designing Simple Machines" Unit Assessment

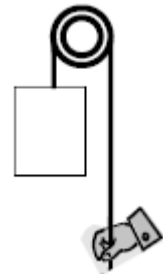
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CORRECT: ●	INCORRECT: ☑ ⊗ ⊖ ⊙

For questions 1 to 5, mark the **BEST** answer.

1. Rich is using a rope and pulley to lift a weight. Choose the arrow that shows the direction in which he is applying force to the

- (A) ↑
- (B) →
- (C) ↓
- (D) ←

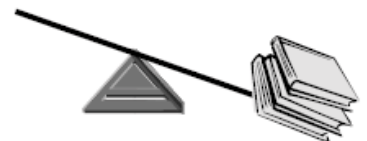


2. Which of the following is technology?

- (A) a way to make air clean
- (B) a computer
- (C) a method for putting together wheelchairs
- (D) all of the above

3. Alex tested this lever to lift his books. The force required to lift the books was 7 Newtons. He then improved his lever to make it easier to lift his books. The force required to lift the books the same height will now be:

- (A) more than 7 Newtons
- (B) equal to 7 Newtons
- (C) less than 7 Newtons



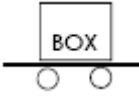
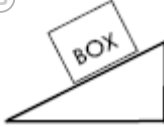
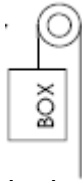
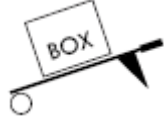
My initials:		
FIRST	MIDDLE	LAST
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(B)	(B)	(B)
(C)	(C)	(C)
(D)	(D)	(D)
(E)	(E)	(E)
(F)	(F)	(F)
(G)	(G)	(G)
(H)	(H)	(H)
(I)	(I)	(I)
(J)	(J)	(J)
(K)	(K)	(K)
(L)	(L)	(L)
(M)	(M)	(M)
(N)	(N)	(N)
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(Q)	(Q)	(Q)
(R)	(R)	(R)
(S)	(S)	(S)
(T)	(T)	(T)
(U)	(U)	(U)
(V)	(V)	(V)
(W)	(W)	(W)
(X)	(X)	(X)
(Y)	(Y)	(Y)
(Z)	(Z)	(Z)

I am a:
<input type="radio"/> Girl
<input type="radio"/> Boy

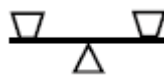
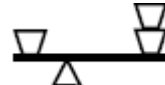


I was born in:
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Do Not Mark	Do Not Mark
(0)	(0)
(1)	(1)
(2)	(2)
(3)	(3)
(4)	(4)
(5)	(5)
(6)	(6)
(7)	(7)
(8)	(8)
(9)	(9)

4. Which technology would NOT decrease the force needed to move the box?

<p>(A)</p>  <p>cart</p>	<p>(B)</p>  <p>ramp</p>
<p>(C)</p>  <p>fixed single pulley</p>	<p>(D)</p>  <p>wheelbarrow</p>

5. The diagrams below represent the position of a balance with weights on it. All the weights are the same. Which diagram is NOT correct?

<p>(A)</p> 	<p>(B)</p> 
<p>(C)</p> 	<p>(D)</p> 

For question 6 fill in **ALL** of the bubbles for **ALL** of the correct answers.

6. Industrial engineers often work to improve processes. Mark **ALL** the processes in the list below.

- assembling a backpack
- a backpack
- a double pulley
- baking cookies

7. Look at each picture. Mark the simple machine shown in each picture.

a. skateboard



- (A) pulley
- (B) screw
- (C) wedge
- (D) wheel and axle

b. top of flagpole



- (A) inclined plane
- (B) lever
- (C) pulley
- (D) wedge

c. ladder



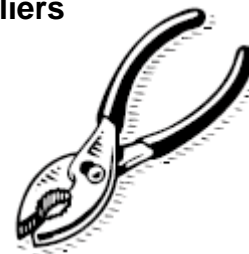
- (A) inclined plane
- (B) lever
- (C) pulley
- (D) wedge

d. thumb tack



- (A) lever
- (B) pulley
- (C) wedge
- (D) wheel and axle

e. pliers



- (A) inclined plane
- (B) lever
- (C) pulley
- (D) wheel and axle

f. jelly jar with lid



- (A) lever
- (B) screw
- (C) wedge
- (D) wheel and axle



"Designing Hand Pollinators" Unit Assessment

My initials:		
FIRST	MIDDLE	LAST
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B	B	B
C	C	C
D	D	D
E	E	E
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M	M	M
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W	W	W
X	X	X
Y	Y	Y
Z	Z	Z

I am a:

Girl

Boy

Do Not Mark

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<input type="radio"/> November	<input type="radio"/>	
<input type="radio"/> December	<input type="radio"/>	

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CORRECT: ●	INCORRECT: <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

For questions 1 to 7, mark the **BEST** answer.

- 1. Lenore notices that the insects that used to pollinate her favorite flower don't live in her garden any more. What is the BEST way for her to pollinate her flowers?**

 - A Introduce a new kind of insect to pollinate the flower.
 - B Spray pesticides.
 - C Plant more of the flower.
 - D Pollinate the flower by hand.
- 2. True or False? Most flowering plants need insects to help them make seeds.**

 - T True
 - F False
- 3. Pollinating insects are useful to plants because they:**

 - A take nectar away from the flower.
 - B take seeds away from the plant.
 - C give food to the plant.
 - D move pollen from one flower to another.

4. Which part of this plant is NOT part of the pollination system?

A Flower

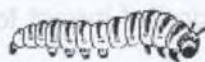
B Pollen

C Leaves

D Nectar



5. Paper wasps eat caterpillars. Caterpillars eat tomato plants. If Mario kills the paper wasps in his garden, what will probably happen?



paper wasp

caterpillar

tomato plant

A There will be more caterpillars eating his tomato plants.

B There will be fewer caterpillars eating his tomato plants.

C There will be more wasps in his garden.

D Nothing will change in the garden.

6. Ari sees insects flying around his favorite pumpkin plants. He is worried they might be hurting his plants. What do you think he should do FIRST to make sure the insects aren't hurting his plants?

A Cover the pumpkin plants with a box.

B Observe the insects to learn what they are doing.

C Kill the insects.

D Water the plants.

7. Why do insects like bees and butterflies visit flowers?

A to get pollen

B to get nectar

C to eat the petals

D to find a place to live

For questions 8 and 9, fill in ALL of the bubbles for ALL of the correct answers.

8. Melissa is designing a hand pollinator. Look at the list below. Mark ALL of the things that she should consider when she designs her hand pollinator.

A the shape of the flower.

B the color of the flower.

C if the pollinator can pick up pollen.

D if the pollinator can drop off pollen.

9. Look at the list below. Mark ALL of the things that agricultural engineers might do for their work.

A Figure out how to keep insects from eating crops.

B Improve a way to pollinate plants that people use for food.

C Figure out the best way to water fields.

D Drive a tractor to harvest food.

E Fix tractors when they break down.

F Plant food crops for people to eat.

G Design a tractor engine.