1. **When balanced forces act on an object, they make the object move.** **True /** **False**

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**Grade 3 Science Benchmark 2**

1. The owner of a junkyard has a problem.   
   He needs a machine that can lift up old cars and drop them in another place.

**What would be the best kind of magnet to help solve this problem?** *(Select all that are correct.)*

* 1. a large electromagnet, because electromagnets can be very powerful
  2. a small electromagnet, because it is easy to hold
  3. many small magnets, because magnets attract metal in cars
  4. a large electromagnet, because electromagnets can be turned on   
     and off

1. Melissa lifts her backpack.  
   **Is she exerting a contact force?**Tell why or why not. *(Answer the question in complete sentences. Be sure to support your answer with scientific evidence.)*

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1. At the playground, Consuela observed and empty swing moving back and forth. It completed 21 swings back and forth in one minute. Then Charles and Linda took turns swinging on the swing.

Consuela counted how many times each of them swung back and forth in one minute.  
Consuela wrote down what she found in the table below.

She also asked Charles and Linda what they weighted.

|  |  |  |
| --- | --- | --- |
| Person on Swing | Weight of Person on Swing | Number of Swings in One Minute |
| No one | 0 | 21 |
| Charles | 25 Kilograms (55 pounds) | 21 |
| Linda | 20 Kilograms (44 pounds) | 21 |

Look at the table.

**What pattern did Consuela observe?**

* 1. The swing went faster when no one was sitting on it.
  2. The swing went faster when people were sitting on it.
  3. The heavier the person on the swing, the faster the swing moved.
  4. The swing always moved at the same speed.

1. Which of the following can be constraints on the solutions to a design problem? (Circle all that are correct.)
   1. materials that can be used
   2. cost of the solution
   3. needs that must be met
   4. time available for solving the problem

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Grade 3 Science Benchmark 2**

1. **What is the difference between weather   
   and climate?**
   1. Weather describes the conditions in the air outside at a certain time and place.  Climate is the general pattern of weather in an area over a long period of time.
   2. Weather is the general pattern of weather in an area over a long period of time.  Climate describes the conditions in the air outside at a certain time and place.
   3. Weather describes changes with the seasons.  Climate is the conditions in the air outside at a certain time and place.
   4. Climate describes the seasons of a certain place.  Weather is the pattern of conditions in an area over a long period of time.
2. Juanita took the following temperature readings outside her classroom one day.

|  |  |
| --- | --- |
| Time | Temperature |
| 9:00 AM | 44 ° F |
| 10:00 AM | 48 ° F |
| 11:00 AM | 53 ° F |
| 12:00 AM | 1. F |

**What could she predict from her data?**

* 1. The falling temperature will likely bring rain.
  2. The afternoon will likely be warmer and she might not need her jacket.
  3. The air temperature will likely rise by 5 degrees throughout the day.
  4. The afternoon will likely be cooler and she will need a jacket

1. Ryan's house has a lightning rod on the roof.  **How will the lightening rod reduce the damage caused by thunderstorms?**

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1. **Humans can stop weather hazards from happening.**  **True False**
2. An engineer is designing a school that will protect children during tornadoes.  **What should his design include?**  *(Select all that would help.)*
   1. windows with special glass that   
      resists breaking
   2. a levee around the school yard
   3. a basement or rooms without windows
   4. a storm shelter in the playground

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Grade 3 Science Physics Quiz Study Guide**

1. **What is a balanced force?**

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1. **What is an unbalanced force?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Which force causes and object to move?

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1. Which would be best to pick up large metal objects like cars?
   1. a large electromagnet, because electromagnets can be very powerful
   2. a small electromagnet, because it is easy to hold
   3. many small magnets, because magnets attract metal in cars
   4. a large electromagnet, because electromagnets can be turned on   
      and off
2. When designing anything there are several things to consider. Materials, cost, time, size, weight etc. What are these called?
   1. Compliments
   2. Complaints
   3. Constraints
   4. Corn starch
3. Melissa lifts her backpack.  
   **Is she exerting a contact force?**Tell why or why not. *(Answer the question in complete sentences. Be sure to support your answer with scientific evidence.)*

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1. Three children were on a swing. John counted how many times it swung in a single minute. This is the chart

|  |  |  |
| --- | --- | --- |
| Person | Weight | # of swings |
| Sam | 160 lbs | 21 |
| Sue | 85 lbs | 21 |
| Sally | 22 lbs | 21 |
| Samantha | 118 lbs | 21 |

What is the same about   
 each piece of data? \_\_\_\_\_\_\_\_\_\_\_\_

How many swings do you think   
you could swing in one minute? \_\_\_\_\_\_\_\_\_

Would Mrs. Cronin swing   
the same number? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**What is the difference between weather   
and climate?**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Grade 3 Science Weather Quiz**

* 1. Weather describes the conditions in the air outside at a certain time and place.  Climate is the general pattern of weather in an area over a long period of time.
  2. Weather is the general pattern of weather in an area over a long period of time.  Climate describes the conditions in the air outside at a certain time and place.
  3. Weather describes changes with the seasons.  Climate is the conditions in the air outside at a certain time and place.
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1. Juanita took the following temperature readings outside her classroom one day.

|  |  |
| --- | --- |
| Time | Temperature |
| 9:00 AM | 44 ° F |
| 10:00 AM | 48 ° F |
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**What could she predict from her data?**

* 1. The falling temperature will likely bring rain.
  2. The afternoon will likely be warmer and she might not need her jacket.
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  4. The afternoon will likely be cooler and she will need a jacket

1. Ryan's house has a lightning rod on the roof.  **How will the lightening rod reduce the damage caused by thunderstorms?**

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1. **Humans can stop weather hazards from happening.**  **True False**
2. An engineer is designing a school that will protect children during tornadoes.  **What should his design include?**  *(Select all that would help.)*
   1. windows with special glass that   
      resists breaking
   2. a levee around the school yard
   3. a basement or rooms without windows
   4. a storm shelter in the playground
3. **When balanced forces act on an object, they make the object move.** **True /** **False**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Grade 3 Science Physics Quiz**

1. The owner of a junkyard has a problem.   
   He needs a machine that can lift up old cars and drop them in another place.

**What would be the best kind of magnet to help solve this problem?** *(Select all that are correct.)*

* 1. a large electromagnet, because electromagnets can be very powerful
  2. a small electromagnet, because it is easy to hold
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     and off

1. Melissa lifts her backpack.  
   **Is she exerting a contact force?**Tell why or why not. *(Answer the question in complete sentences. Be sure to support your answer with scientific evidence.)*

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1. At the playground, Consuela observed and empty swing moving back and forth. It completed 21 swings back and forth in one minute. Then Charles and Linda took turns swinging on the swing.

Consuela counted how many times each of them swung back and forth in one minute.  
Consuela wrote down what she found in the table below.

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| --- | --- | --- |
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| No one | 0 | 21 |
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| Linda | 20 Kilograms (44 pounds) | 21 |

Look at the table.

**What pattern did Consuela observe?**

* 1. The swing went faster when no one was sitting on it.
  2. The swing went faster when people were sitting on it.
  3. The heavier the person on the swing, the faster the swing moved.
  4. The swing always moved at the same speed.

1. Which of the following can be constraints on the solutions to a design problem? (Circle all that are correct.)
   1. materials that can be used
   2. cost of the solution
   3. needs that must be met
   4. time available for solving the problem

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Grade 3 Science Weather Quiz Study Guide**

1. **Define these terms:**

**Weather** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Season**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Climate**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. **What is the difference between weather   
   and climate?**

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1. If it is 32° F at the beginning of school   
   and 45° F at lunchtime, **what temperature could you predict when you leave   
   school at 4:00?** \_\_\_\_\_\_\_\_\_\_\_\_

**Is it going to rain or snow? Why are you sure?**

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1. **How does a lightning rod work?** Draw an illustration *and* explain it in words

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1. **Can scientists stop a hurricane? Yes / No Can scientists stop a tornado? Yes / No   
   Can scientists stop lightning? Yes / No**
2. An engineer is designing a school that will protect children during tornadoes.
3. **What should his design include?**

*(circle all that would help.)*

|  |  |
| --- | --- |
| shatter-resistant glass | fire extinguishers |
| life-boats in the hallways | a storm shelter in the playground |
| a basement for the students to hide in | a moat around the whole school |
| a lightning rod | an anemometer |

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Grade 3 Science Unit Two Study Guide**

1. **What is a balanced force?**

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1. **What is an unbalanced force?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Which force causes and object to move?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Which would be best to pick up large metal objects like cars?
   1. a large electromagnet, because electromagnets can be very powerful
   2. a small electromagnet, because it is easy to hold
   3. many small magnets, because magnets attract metal in cars
   4. a large electromagnet, because electromagnets can be turned on   
      and off
2. When designing anything there are several things to consider. Materials, cost, time, size, weight etc. What are these called?
   1. Compliments
   2. Complaints
   3. Constraints
   4. Corn starch
3. Melissa lifts her backpack.  
   **Is she exerting a contact force?**Tell why or why not. *(Answer the question in complete sentences. Be sure to support your answer with scientific evidence.)*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Three children were on a swing. John counted how many times it swung in a single minute. This is the chart

|  |  |  |
| --- | --- | --- |
| Person | Weight | # of swings |
| Sam | 160 lbs | 21 |
| Sue | 85 lbs | 21 |
| Sally | 22 lbs | 21 |
| Samantha | 118 lbs | 21 |

What is the same about   
 each piece of data? \_\_\_\_\_\_\_\_\_\_\_\_

How many swings do you think   
you could swing in one minute? \_\_\_\_\_\_\_\_\_

Would Mrs. Cronin swing   
the same number? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Grade 3 Science Weather Quiz Study Guide**

1. **Define these terms:**

**Weather** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Season**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Climate**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. **What is the difference between weather   
   and climate?**

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1. If it is 32° F at the beginning of school   
   and 45° F at lunchtime, **what temperature could you predict when you leave   
   school at 4:00?** \_\_\_\_\_\_\_\_\_\_\_\_

**Is it going to rain or snow? Why are you sure?**

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1. **How does a lightning rod work?** Draw an illustration *and* explain it in words

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1. **Can scientists stop a hurricane? Yes / No Can scientists stop a tornado? Yes / No   
   Can scientists stop lightning? Yes / No**
2. An engineer is designing a school that will protect children during tornadoes.
3. **What should his design include?**

*(circle all that would help.)*

|  |  |
| --- | --- |
| shatter-resistant glass | fire extinguishers |
| life-boats in the hallways | a storm shelter in the playground |
| a basement for the students to hide in | a moat around the whole school |
| a lightning rod | an anemometer |