Answer Key for Captions and Visuals in the Power Point

<table>
<thead>
<tr>
<th>Caption</th>
<th>Visual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Egypt: Feast or Famine? Answer is in the Nile</td>
<td>Map of Africa</td>
</tr>
<tr>
<td>2. Egypt – Gift of the Nile – Water for Life---------------------------</td>
<td>Pic of Nile</td>
</tr>
<tr>
<td>3. Shadoof and Work-----------------------------------------------------</td>
<td>Shadoof used in basin</td>
</tr>
<tr>
<td>4. Basin Irrigation------------------------------------------------------</td>
<td>Pic of canal system</td>
</tr>
<tr>
<td>5. Simple Machines-------------------------------------------------------</td>
<td>Pic of 6 simple machines</td>
</tr>
<tr>
<td>6. Lever – How does it work?---------------------------------------------</td>
<td>Drawing of man with lever</td>
</tr>
<tr>
<td>7. Class 1 lever----------------------------------------------------------</td>
<td>Diagram and seesaw pic</td>
</tr>
<tr>
<td>8. Class 2 lever----------------------------------------------------------</td>
<td>Diagram and wheelbarrow</td>
</tr>
<tr>
<td>9. Class 3 lever----------------------------------------------------------</td>
<td>Diagram and Broom</td>
</tr>
<tr>
<td>10. Shadoof: Which class of lever is it?---------------------------------</td>
<td>Lever class diagrams</td>
</tr>
<tr>
<td>11. Work: Force Times Distance-------------------------------------------</td>
<td>Parts of the shadoof</td>
</tr>
<tr>
<td>12. Pyramid---------------------------------------------------------------</td>
<td>Shadoof in pyramid-building</td>
</tr>
<tr>
<td>13. Pharoah – The Scorpion King------------------------------------------</td>
<td>Scorpion King</td>
</tr>
<tr>
<td>14. A Heavy Load----------------------------------------------------------</td>
<td>Egyptian obelisk</td>
</tr>
<tr>
<td>15. Shadoofs today-------------------------------------------------------</td>
<td>Romania &amp; Kom Ombo, Egypt</td>
</tr>
<tr>
<td>16. The difference they have made!---------------------------------------</td>
<td>Fantastic machine using levers</td>
</tr>
<tr>
<td>17. YouTube video – “Shaduf 123”</td>
<td></td>
</tr>
</tbody>
</table>

Social Studies Assessment  - Answer Key

1. C
2. B
3. C
4. C
5. A
6. B
7. D
8. A
9. B
10. B
Social Studies Assessment

Name_________________________________________

Directions: Circle the letter of the correct answer.

1. The Nile River Valley was affected each year by what natural disasters?
   a. earthquakes
   b. tsunamis
   c. floods
   d. forest fires

2. Ancient Egyptians used which method to irrigate their fields?
   a. sprinkler systems
   b. basins and canals
   c. hoses
   d. water wheels

3. What tool was used to make irrigation easier?
   a. corkscrew
   b. water-pump
   c. shadoof
   d. windmill

4. How many times its normal size did the Nile grow every year from June through October?
   a. 2
   b. 5
   c. 15
   d. 20

5. The shadoof is an example of what kind of lever?
   a. class 1
   b. class 2
   c. class 3
   d. class 4

6. Water was transferred from the Nile River to irrigate the dry agricultural land in what way?
   a. with a water wheel
   b. into basins
   c. from holding tanks
   d. by water trucks
7. **What kind of simple machine was the shadoof?**
   a. wedge  
   b. pulley  
   c. wheel and axle  
   d. lever

8. **Shadoofs were also used to move which of the following?**
   a. stones and obelisks  
   b. the Egyptian Museum  
   c. sphinx  
   d. camels

9. **What does the artifact in the Power Point show the Scorpion King doing?**
   a. fanning himself  
   b. cutting into an irrigation ditch  
   c. sailing on the Nile  
   d. playing with a scorpion

10. **Where are shadoofs used today in farming?**
    a. North America and South America  
    b. Africa and Asia  
    c. Australia and Antarctica  
    d. Europe and Australia
Plan Sheet for a Shadoof

Group Members____________________
____________________
____________________

1. How do we make a fulcrum that won’t tip over?

2. How do we make a sturdy lever?

3. How do we make the lever pivot?

Drawing

List of Materials

____________  _____________   ______________  _____________
_______________    ______________  _____________   ______________

Loads (to be completed after construction)

Counterweight (in pennies)  Load (in pennies)
1. __________  1. __________
2. __________  2. __________
3. __________  3. __________
Picture of a Shadoof Labeled
## Science and Engineering Rubric

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Points possible</th>
<th>Points Earned</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Craftsmanship</strong></td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shadoof was completed and working</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parts</strong></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parts were labeled correctly and creatively: fulcrum, load, counterweight, lever</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Plan</strong></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three questions regarding construction of shadoof</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drawing of proposed shadoof</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>List of materials</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>List</strong></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 types of loads</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 types of counterweights</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Group Dynamics</strong></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working together &amp; Museum walk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Points</strong></td>
<td><strong>100</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Group members**

- [ ]
- [ ]
- [ ]
- [ ]
Shadoof and Ratio Problems

The bucket hanging from Abu's shadoof holds 10 gallons of water. He can move a bucket from the basin to a 60 gallon tank in 3 minutes.

2. _____________Express the ratio of the amount the bucket holds to the amount of the capacity of the tank.

3. _____________Express the ratio of the amount of three bucketfuls to the amount of the capacity of the tank.

4. _____________Express the ratio of the amount of four bucketfuls to the amount of the capacity of the tank.

5. _____________How long will it take him to fill the 60 gallon tank?

Awad works every day operating a shadoof in Nigeria. His shadoof can raise over 2,500 gallons a day.

6. _____________How many gallons can he raise in 5 days?

7. _____________What is the ratio of the number of gallons from 1 day to 5 days?
The bucket hanging from Abu's shadoof holds 10 gallons of water. He can move a bucket from the basin to a 60 gallon tank in 3 minutes.

1. **1:6** Express the ratio of the amount the bucket holds to the amount of the capacity of the tank.

2. **30 to 60 or 1:2** Express the ratio of the amount of three bucketfuls to the amount of the capacity of the tank.

3. **40 to 60 or 2:3** Express the ratio of the amount of four bucketfuls to the amount of the capacity of the tank.

4. **3 min. x 6 = 18** How long will it take him to fill the 60 gallon tank?

Awad works every day operating a shadoof in Nigeria. His shadoof can raise over 2,500 gallons a day.

5. **2,500 gal. X 5 days – 12,500** How many gallons can he raise in 5 days?

6. **2,500 to 12,500 or 1:5** What is the ratio of the number of gallons from 1 day to 5 days?
Shadoof Math Assessment

Ahmed has built a shadoof that is 72 feet long. The fulcrum is 1/3 of the way from one end to the other.

1. __________How long is the short end?
2. __________How long is the long end?
3. __________Express the ratio of the short end to the long end.
4. __________Express the ratio of the short end to the entire fulcrum.

It took 20 men to operate each shadoof lifting stones to build a pyramid.

5. __________ Express the ratio of the number of men per pyramid.
6. __________ How many men operated 7 shadoofs in the pyramid building?

Amahl and his two brothers worked on the Nile with a shadoof. They can move 1,000 gallons of water per day.

7. __________ Express the ratio of workers to shadoofs
8. __________How much water is moved in 4 days?
9. __________ How much water is moved in 10 days?

There are one dozen shadoofs operating on the Upper Nile River and two dozen operating on the Lower Nile River.

10. __________What is the ratio of the shadoofs on the Upper Nile to the total amount on the Nile?
**Shadoof Math Assessment – Answer key**

Ahmed has built a shadoof that is 72 feet long. The fulcrum is 1/3 of the way from one end to the other.

1. **24 feet** How long is the short end?
2. **48 feet** How long is the long end?
3. **24:48 or 1:2** Express the ratio of the short end to the long end.
4. **24:72 or 1:3** Express the ratio of the short end to the entire fulcrum.

It took 20 men to operate each shadoof lifting stones to build a pyramid.

5. **20:1** Express the ratio of the number of men per pyramid.
6. **7 x 20 = 140 men** How many men operated 7 shadoofs in the pyramid-building?

Amahl and his two brothers worked on the Nile with a shadoof. They can move 1,000 gallons of water per day.

7. **3:1** Express the ratio of workers to shadoofs
8. **4 x 1,000 = 4,000** How much water is moved in 4 days?
9. **10 x 1,000 = 10,000** How much water is moved in 10 days?

There are one dozen shadoofs operating on the Upper Nile River and 2 dozen operating on the Lower Nile River.

10. **12 to 24 or 1:2** What is the ratio of the shadoofs on the Upper Nile to the total amount on the Nile?