

Name: \_\_\_\_\_

## Shifting Skies

### Part I:

#### Introduction:

1. Circle what is different about the two pictures.



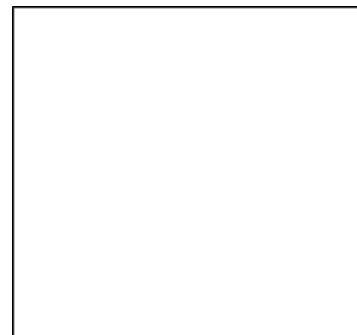
2. What is needed to make a shadow?

\_\_\_\_\_

3. Below is what we will use for these things in our experiment.

\_\_\_\_\_

4. Draw what is useful in determining directions:

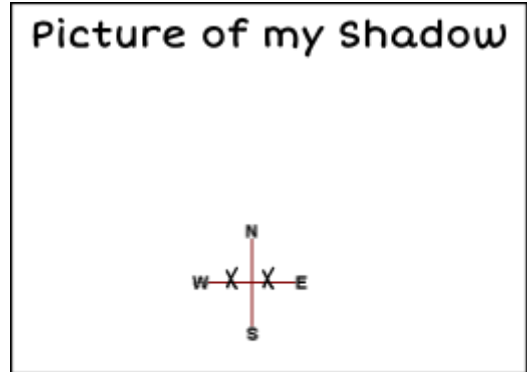


*Morning, Lunch, and Afternoon Observations:*

Morning (blue):  
medium long

Shadow Length: (Circle one) short

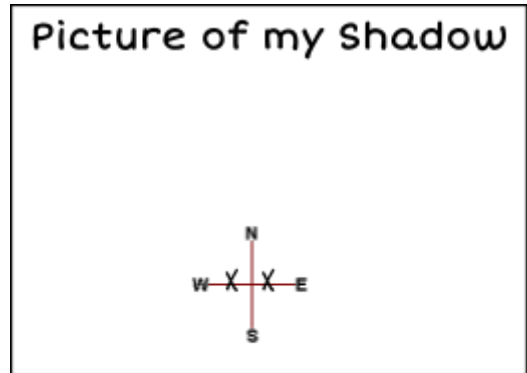
Shadow Direction: \_\_\_\_\_



Lunch (green):  
medium long

Shadow Length: (Circle one) short

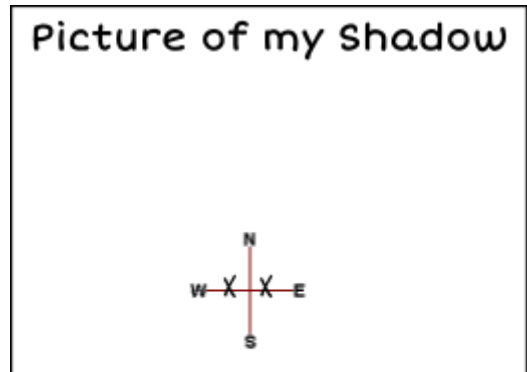
Shadow Direction: \_\_\_\_\_



Afternoon (red):  
medium long

Shadow Length: (Circle one) short

Shadow Direction: \_\_\_\_\_





*Explaining Data:*

5. During our observations we: (Circle one)

Changed / Stayed the same

6. During our observations our shadow: (Circle one)

Changed / Stayed the same

7. What might explain the change?

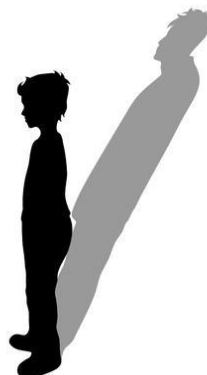
---

---

8. What other data could we collect to test this?

---

---



**Part 2:**

*Morning, Lunch, and Afternoon Observations:*

Morning (blue):

Is your shadow about the same as

Part I: (Circle one)

Yes                  No

Sun Position: \_\_\_\_\_

Picture of my  
Shadow and the Sun



Lunch (green):

Is your shadow about the same as Part I: (Circle one)

Yes                  No

Sun Position: \_\_\_\_\_

Picture of my  
Shadow and the Sun



Afternoon (red):

Is your shadow about the same as

Part I: (Circle one)

Yes                  No

Sun Position: \_\_\_\_\_

Picture of my  
Shadow and the Sun





*Explaining Data:*

9. The

---

changed about the Sun.

10. The

---

stayed the same about the Sun.

11. Did your shadows change in the same way as Part 1? (Circle one)

Yes

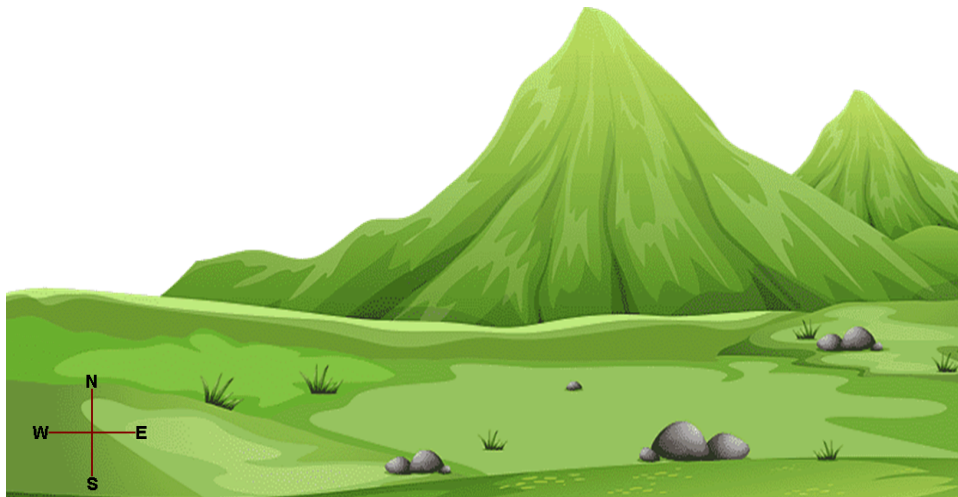
No

12. Do you think the Sun was responsible for the changes seen in your shadow during the day? (Circle one)

Yes

No

13. Draw the path that the Sun takes during the course of the day, in the picture below.



**Part 3:**

*Sun and Earth Patterns*

14. During the day the Sun seemed to

\_\_\_\_\_ , which changed our

\_\_\_\_\_

however scientists have found that the Sun

is \_\_\_\_\_

\_\_\_\_\_ in the sky. How is

this possible?

15. What could explain our shadows changing

during the day?

\_\_\_\_\_

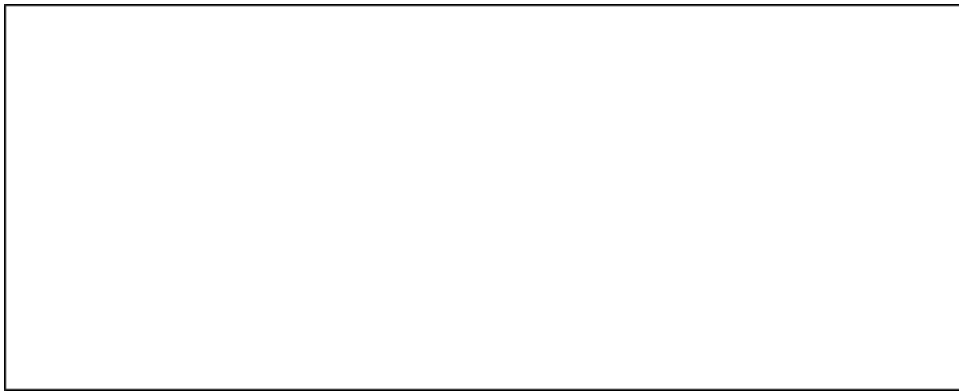
\_\_\_\_\_.

16. Is there anything else that this explains?

---

---

17. Draw a picture of the Earth and the Sun and indicate movement.



18. Is this motion predictable? (Circle one)

Yes

No

19. How often does the pattern repeat?

\_\_\_\_\_

### Watch Video

20. Does the video support your explanations?  
(Circle one)

Yes

No

21. Was the Sun really moving in the video? (Circle one)

Yes

No

If no, what explains what you saw:

\_\_\_\_\_

\_\_\_\_\_

22. What other object did you see in the sky?

\_\_\_\_\_

23. Do you think the object was moving? (Circle one)

Yes

No



**Part 4:**

*Moon and Earth Patterns A*

Watch video

24. The

\_\_\_\_\_ changed about the Moon.

25. The \_\_\_\_\_ stayed the same about the Moon.

26. During the night the Moon seems to

\_\_\_\_\_. However, this can be explained by the

\_\_\_\_\_  
\_\_\_\_\_.

*Moon and Earth Patterns B*

Observer Pictures

27. The

\_\_\_\_\_ \_ changed about the Moon.

28. The \_\_\_\_\_  
stayed the same about the Moon.

29. If the Moon and the Earth were in the same  
place all the time would the Moon look  
different to us? (Circle one)

Yes

No

30. What explains the phases of the Moon?

---

---

---

31. Draw a picture of the Earth, Moon and the  
Sun and indicate movement.



32. Is this motion predictable? (Circle one)

Yes

No

33. How often does the pattern repeat?

\_\_\_\_\_

34. What else do we see in the sky at night?

\_\_\_\_\_

35. Do you think the stars appear to stay in the same place every night? (Circle one)

Yes

No

**Part 5:**

*Star and Earth Pattern A*

Watch video

36. The

\_\_\_\_\_   
 \_ changed about the stars.

37. The \_\_\_\_\_   
 stayed the same about the stars.

38. What could explain this?

\_\_\_\_\_

Watch video

39. Does the video support your explanation?  
(Circle one)

Yes

No

*Star and Earth Pattern B*

Look at Pictures

40. The

\_\_\_\_\_   
 \_ changed about the stars.

41. The \_\_\_\_\_   
 stayed the same about the stars.

42. What could explain what you are seeing?

---

---

43. Draw a picture of the Earth, Moon, stars, and the Sun and indicate movement.



44. Is this motion predictable? (Circle one)

Yes                  No

45. How often does the pattern repeat?

---

46. What objects that we discussed have patterns in their movement?

---

---