




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

## Movie Worksheet: The Martian {25 Points}

**Directions:** As you watch the film, find examples of each of the following scientific concepts below. Write a sentence for each one. Examples can come from events that happen in the film, things discussed by the characters, or even simple visuals shown in passing. Please **highlight** or change the **text color** of your answers.

1. One example of Newton's First Law: An object at rest stays at rest and an object in motion stays in motion unless acted upon by an unbalanced force.
2. One example of Newton's Third Law: For every action, there is an equal and opposite reaction force.
3. Match the image of each character with their name. Images are in the order of appearance. Names are listed in alphabetical order.

1. 	2. 	3. 	4. 	5. 
6. 	7. 	8. 	9. 	10. 
11. 	12. 	13. 		

A. Alex Vogel  
*Navigator/Chemist*

B. Annie Montrose  
*Media Relations*

C. Beth Johanssen  
*Computer Systems*

D. Bruce Ng  
*Director of the JPL*

E. Chris Beck  
*Flight Surgeon*

F. Mark Watney  
*Botanist*

G. Melissa Lewis  
*Commander/Geologist*

H. Mindy Park  
*Satellite Comms*

I. Mitch Henderson  
*Hermes Flight Director*

J. Rich Purnell  
*Astrodynamics*

K. Rick Martinez  
*Pilot*

L. Teddy Sanders  
*Director of NASA*

M. Vincent Kapoor  
*Director of Mars Missions*

**Directions:** Answer any eight out of twenty questions as you watch the movie. Questions are in order. Question 21 is not optional and must be answered. Please highlight or change the text color of your answers.

1. What planet does the movie begin on?
2. What event causes the astronauts to abort the mission?
3. What does the pilot do to keep the MAV upright after it tips past 13 degrees?
4. When Mark Watney makes his first video log-entry, what mission day (SOL #) is it?
5. According to Watney, the earliest that another manned mission could rescue him is in four years. How long is his habitat, or "Hab" designed to last?
6. In order to survive, Watney needs to grow food.
  - a. What does he decide to grow?
  - b. Where does he grow it and how?
  - c. What does he mix into the soil to provide the needed bacteria?
7. What happened when Watney tried to make water?
8. How does NASA figure out that Watney is alive?
9. According to Watney, if he does not use his heater in the rover he will be "slowly killed by the laws of \_\_\_\_\_." (Fill in the blank.)
10. How does Watney solve the heat problem in the rover?
11. What does Watney use to reestablish communication with NASA?
12. What happened to the crops when the airlock exploded?
13. How does Watney seal the hole caused by the airlock explosion?
14. What happens to the rocket that is carrying Watney's extra food?
15. What country offers to help NASA get food to Watney?
16. NASA has a secret meeting that they code name the "Council of \_\_\_\_\_." (Fill in the blank.)
17. What does the crew of the Hermes decide to do to help Watney?
18. From a legal standpoint, Mars counts as "international waters." Watney is going to commandeer the Ares 4 lander which makes him by definition what?
19. What does Watney have to remove from the MAV in order to get it light enough to launch at the speeds that he needs?
20. What does the Hermes crew use to slow down the ship?
21. Long Answer: The Martian is all about solving problems using science and whatever materials we have present to us. Think about a time when you had to use some ingenuity to fix something that was broken. How did the object break? What challenges did you face in fixing the object? How did you overcome these challenges? Did your fix work? Why or why not? How did you feel when the object broke? How did you feel after fixing it? What did you learn from the experience?