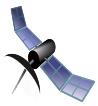
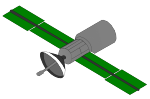
Name: _____
Teacher: _____
Date: _____



CubeSat Forces



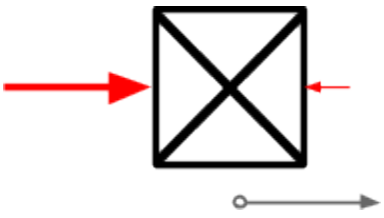
SCI.3.1.1, 3.1.3, 3.1.4, 3.1.5

Big AI™ has forgotten some of his motion and stability words and needs some help! Draw a line from each word to its definition to help Big AI™ remember what each word means!

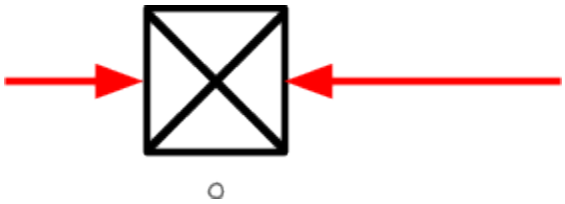
1. Balanced Forces	Forces that are in opposition to the relative motion of an object as it passes through the air (also known as “drag”).
2. Unbalanced Forces	An action on an object that changes in size over time.
3. Variable	Two or more actions that even out to make an object neutral.
4. Friction	How quickly an object moves.
5. Air Resistance	A force that resists motion.
6. Speed	Two or more actions of different size on an object.
7. Motion	Where an object is located relative to something else.
8. Position	Movement of an object over time.

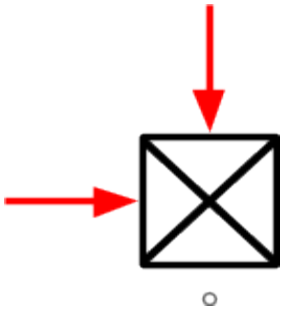
Draw an arrow on the circle below the CubeSat to demonstrate what direction each of these CubeSats would move, if any, based on the forces that they are experiencing. The first one is done for you.

9.



10.

11. 

12. 

13. When a CubeSat, or any object, has balanced forces, what happens?

_____

_____

_____

14. When a CubeSat, or any object, has unbalanced forces, what happens?

_____

_____

_____

If there is a variable force on a CubeSat that starts at 1 Newton, or N, (Newton is a unit of force) and is increased by 2 Newtons with each second that passes, what are the forces experienced at each second?

15. 1 second: _____ N

16. 2 seconds: _____ N

17. 3 seconds: _____ N

18. 4 seconds: _____ N

19. 5 seconds: _____ N

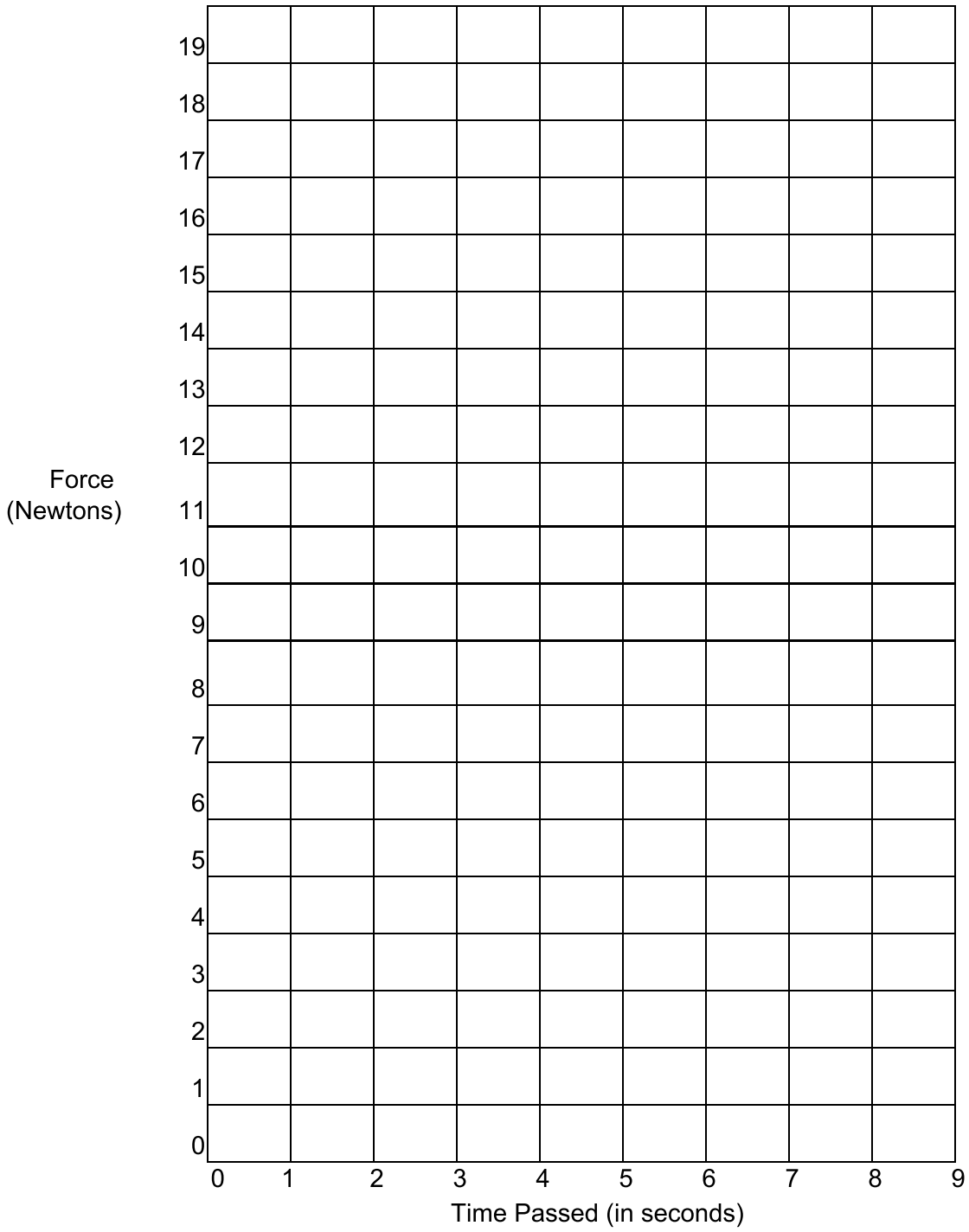
20. 6 seconds: _____ N

21. 7 seconds: _____ N

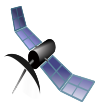
22. 8 seconds: _____ N

23. Using the time and force values from questions 15-22, plot a chart to see the CubeSats forces over time. Put a dot for the time and force then connect the dots with one single line.

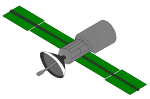
Force a CubeSat Feels Over Time with Variable Increase



Name: _____
Teacher: _____
Date: _____



KEY: CubeSat Forces



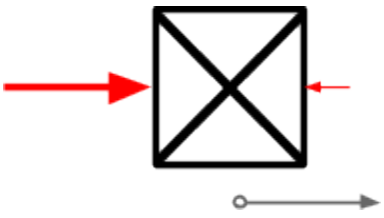
SCI.3.1.1, 3.1.3, 3.1.4, 3.1.5

Big AI™ has forgotten some of his motion and stability words and needs some help! Draw a line from each word to its definition to help Big AI™ remember what each word means!

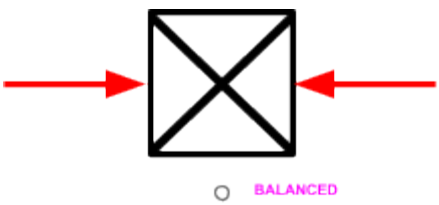
1. Balanced Forces	Forces that are in opposition to the relative motion of an object as it passes through the air (also known as "drag").
2. Unbalanced Forces	An action on an object that changes in size over time.
3. Variable	Two or more actions that even out to make an object neutral.
4. Friction	How quickly an object moves.
5. Air Resistance	A force that resists motion.
6. Speed	Two or more actions of different size on an object.
7. Motion	Where an object is located relative to something else.
8. Position	Movement of an object over time.

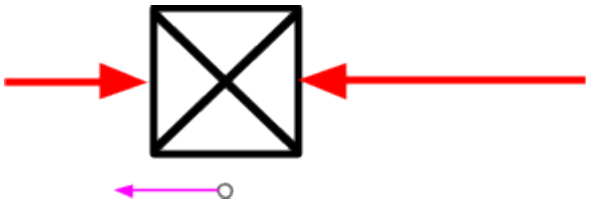
Draw an arrow on the circle below the CubeSat to demonstrate what direction each of these CubeSats would move, if any, based on the forces that they are experiencing. The first one is done for you.

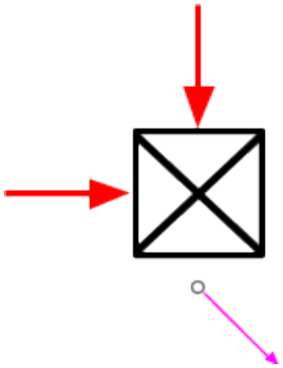
1.



2.



3. 

4. 

5. When a CubeSat, or any object, has balanced forces, what happens?

_____

_____**IT DOESN'T MOVE**_____

_____

6. When a CubeSat, or any object, has unbalanced forces, what happens?

_____

_____**IT MOVES IN THE DIRECTION OF THE LARGER FORCE**_____

_____

If there is a variable force on a CubeSat that starts at 1 Newton, or N, (Newton is a unit of force) and is increased by 2 Newtons with each second that passes, what are the forces experienced at each second?

7. 1 second: _____3_____ N
8. 2 seconds: _____5_____ N
9. 3 seconds: _____7_____ N
10. 4 seconds: _____9_____ N
11. 5 seconds: _____11_____ N
12. 6 seconds: _____13_____ N
13. 7 seconds: _____15_____ N
14. 8 seconds: _____17_____ N

15. Using the time and force values from questions 15-22, plot a chart to see the CubeSats forces over time. Put a dot for the time and force then connect the dots with one single line.