



The Hobby Shop: Rocket Module

Rocket Web Guide

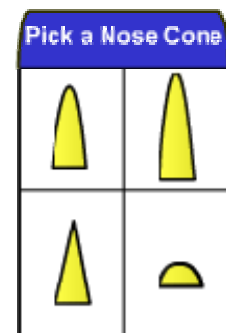
Name _____ Date _____ Class _____

Directions: Open an Internet browser and type www.knowitall.org into the URL box. Once you are at Knowitall, click on The Hobby Shop and find your way to the Rocket module. As you go through the Rocket module, complete this guide. You may need to click on the question marks/buttons to help you out; when you are ready to exit a section, click on the X in the upper right hand corner.

- 1) After you choose your rocket, you get to _____ it. (3 points)
- 2) What three types of things can you change on your rocket? (3 points)

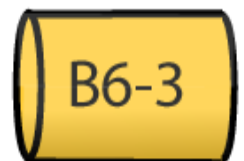
Nose cones. Click on the question mark beside the nose cones and answer the following questions.

- 3) Why is the shape of the nose cone important? (5 points)
- 4) What is the variable/symbol that represents drag? (3 points)
- 5) On the chart to the right, circle the nose cone you would use to allow your rocket to reach its maximum height or altitude. (5 points)



Engines. Click on the question mark beside the engines and answer the following questions.

- 6) The letter _____ represents the total impulse on this engine. (3 points)



What is the total impulse of this engine? _____ Newton-seconds (3 points)

7) What does the total impulse of an engine tell us? (5 points)

8) On the chart to the right:

- a. Circle the engine with the lowest total impulse. (5 points)
- b. Considering only the total impulse, put a square around the engine that rocket go the highest. (5 points)

Pick Your Engine	
A 8-3	B 4-4
B 6-4	C 6-5

should

9) What does the first *number* on the engine indicate? (3 points)

10) What does the number after the dash on an engine represent? (3 points)

Fins. Click on the question mark beside the fins and answer the following questions.

11) What is the purpose of the fins? (5 points)

12) On the chart to the right, circle the set of fins you would use to allow your rocket to reach its maximum height or altitude. (5 points)

Pick Your Fins	
	
	

Newton's first law. Click on the button labeled Newton's first law and answer the following questions.

13) What is the external force applied to launch the rocket? (5 points)

14) After the engine burns out, what two external forces cause the rocket to change its state of motion?
(4 points)

Newton's second law. Click on the button labeled Newton's second law and answer the following questions.

15) Use the equation $F = M \times A$ to help you fill in the blanks. The amount of _____ applied to an object is equal to the object's _____ times the object's _____. (6 points)

16) What is the number that represents the acceleration of gravity? (Remember to include the units!) (4 points)

17) What is the total mass of this rocket in kilograms? (4 points)

18) What is the force of this rocket? (Remember to include the units!) (4 points)

Newton's third law. Click on the button labeled Newton's third law and answer the following questions.

19) For every action, there is an _____ and _____ reaction. (4 points)

20) The action of the rocket is the gas expelling from the bottom of the rocket. What is the reaction? (5 points)

Launch.

21) Launch a rocket. What two things happen to the rocket once it reaches its maximum elevation? (4 points)

_____.

Why would this happen? (4 points)

_____.