Name: _____ Date: _____

Strawkets and Weight Activity – Weight Quiz – Answers

Weight

1. My rocket is too heavy for the thrust from my engines. What are two things I could do to have a successful liftoff?

    1. Decrease the weight of the rocket (but less fuel reduces thrust!).
    2. Increase the thrust of the engine (but adding fuel adds weight!).

2. F = ma is from Newton's second (first, second or third) law of motion?

    (Force = mass × acceleration)

3. Which of these rockets will make it to orbit? (Force ÷ Mass = Acceleration)

    An ACCELERATION of 10 or greater is needed to achieve orbit!

#1 

Fuel thrust force = 40
Rocket mass = 5

40 ÷ 5 = 8 → NO!

#2 

Fuel thrust force = 60
Rocket mass = 6

60 ÷ 6 = 10 → YES!

#3 

Fuel thrust force = 70
Rocket mass = 7

70 ÷ 7 = 10 → YES!

#4 

Fuel thrust force = 75
Rocket mass = 8

75 ÷ 8 = 9.37 → NO!

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Image source: quest.nasa.gov/neuron/kids/ express/page2.html

Part III. Control

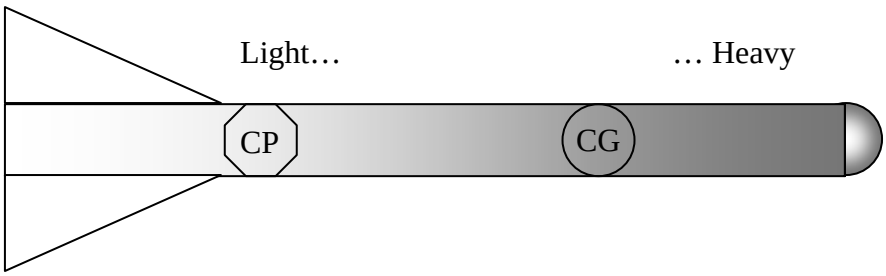
1. Circle True or False for each statement below:

   True or False : To fly, rockets flap their wings.

   True or False : In air, wings and fins help a rocket fly straight.

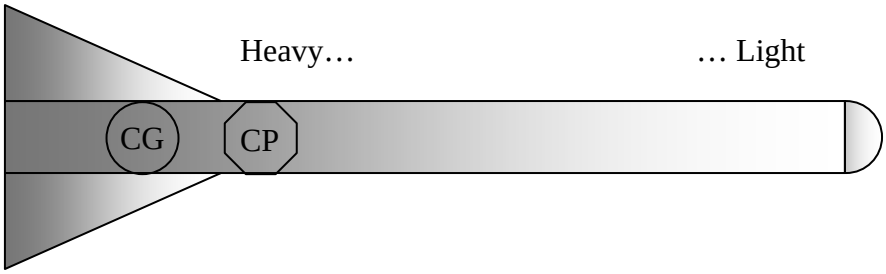
   True or False : Rockets need control fins (wings) in space.

2. Which of these rockets will end up flying backward?



☐ This one!

☐ I don't know!



☒ This one!

Explanation: Objects rotate about their Center of Gravity (CG). The Center of Pressure (CP) will be "blown" around and try to align BEHIND the CG.