

THE BANANA GUN

THE NATURE OF ACCELERATION IN PROJECTILE MOTION

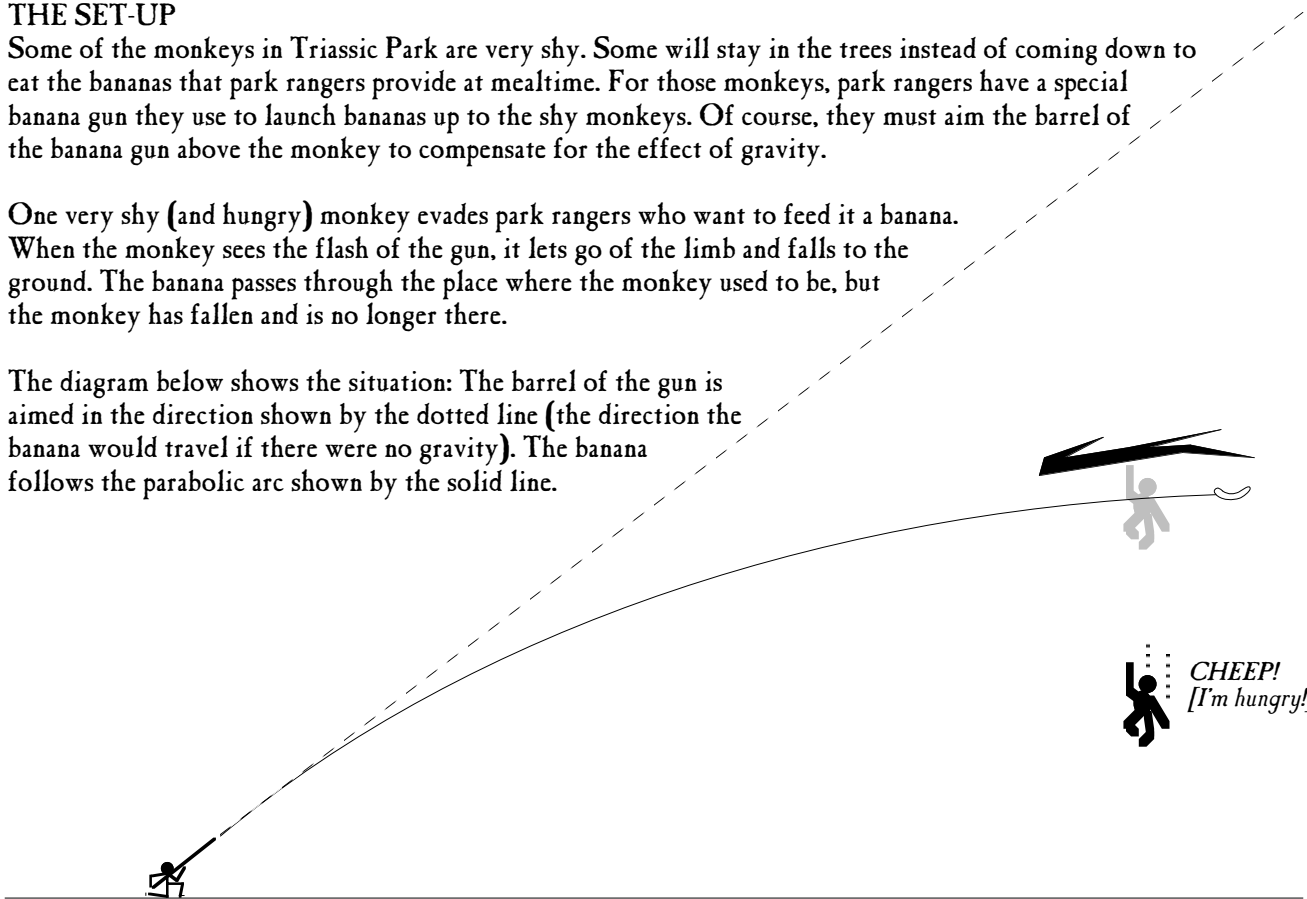
Name: _____ Per: _____ Date: _____ P:CCB-13 (15)

THE SET-UP

Some of the monkeys in Triassic Park are very shy. Some will stay in the trees instead of coming down to eat the bananas that park rangers provide at mealtime. For those monkeys, park rangers have a special banana gun they use to launch bananas up to the shy monkeys. Of course, they must aim the barrel of the banana gun above the monkey to compensate for the effect of gravity.

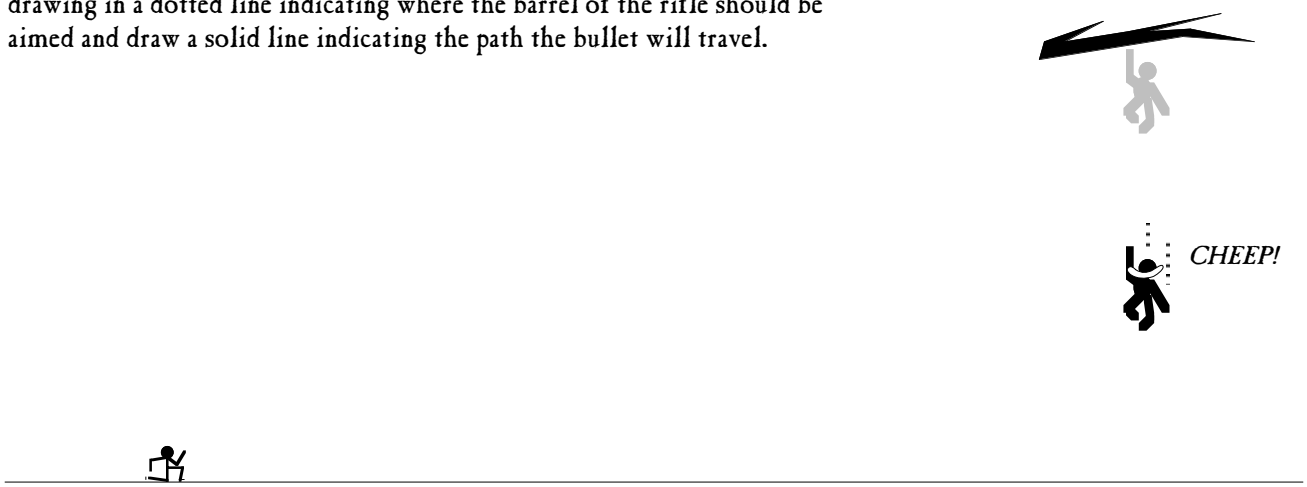
One very shy (and hungry) monkey evades park rangers who want to feed it a banana. When the monkey sees the flash of the gun, it lets go of the limb and falls to the ground. The banana passes through the place where the monkey used to be, but the monkey has fallen and is no longer there.

The diagram below shows the situation: The barrel of the gun is aimed in the direction shown by the dotted line (the direction the banana would travel if there were no gravity). The banana follows the parabolic arc shown by the solid line.



THE QUESTION & YOUR PREDICTION

Where should the barrel of the banana gun be aimed so the banana gets to the monkey as the monkey falls to the ground? Complete the diagram below by drawing in a dotted line indicating where the barrel of the rifle should be aimed and draw a solid line indicating the path the bullet will travel.



THE RATIONALE

Justify your aiming decision. Describe how factors such as banana speed and distance to the monkey would affect your decision (or if they are irrelevant).

-- DO NOT PROCEED UNTIL THE DEMONSTRATION HAS BEEN PERFORMED --

THE EVIDENCE AND RESOLUTION

What aiming technique actually succeeded in hitting the monkey, and why did it work?

