A Whale of a Roller Coaster: Sensor Kinetic Worksheet

1. Clear the screen to restart the accelerometer. Hold the mobile device with two hands, screen facing the ceiling. Press the start button. Keep the phone in this rest position for four seconds. Press the stop button.

* Did the red or green line show movement from the rest position?

No, there is no movement from the rest position

* Draw your accelerometer data below

1. Clear the screen to restart the accelerometer. Hold the mobile device with two hands, screen facing the ceiling. Press the start button and tilt the top of the mobile device towards the floor and back to the starting position. Press the stop button.

* Circle the color of the line that shows movement from the rest position: Red or Green
* Draw your accelerometer data below



1. Clear the screen to restart the accelerometer. Hold the mobile device with two hands, screen facing the ceiling. Press the start button and tilt the bottom of the mobile device towards the floor and back to the starting position. Press the stop button.

* Circle the color of the line that shows movement from the rest position: Red or Green
* Draw your accelerometer data below



1. Clear the screen to restart the accelerometer. Hold the mobile device with two hands, screen facing the ceiling. Press the start button and tilt the left side of the mobile device towards the floor and back to the starting position. Press the stop button.

* Circle the color of the line that shows movement from the rest position: Red or Green
* Draw your accelerometer data below



1. Clear the screen to restart the accelerometer. Hold the mobile device with two hands, screen facing the ceiling. Press the start button and tilt the right side of the mobile device towards the floor and back to the starting position. Press the stop button.

* Circle the color of the line that shows movement from the rest position: Red or Green
* Draw your accelerometer data below



Analyzing the Accelerometer Data

1. When the red line moves up towards positive 90°, what motion is the whale moving in?

Upwards; the pitch of the whale is ascending

1. When the red line moves down towards the negative 90°, what motion is the whale moving?

Downwards; the pitch of the whale is descending

1. When the whale dives deeper into the water, is the pitch of the whale ascending or descending?

Descending

1. When the whale begins to move towards the surface of the water, is the pitch of the whale ascending or descending?

Ascending

1. When the green line moves up towards positive 90°, what motion is the whale moving in?

Tilt to the left; left lateral roll

1. When the green line moves down towards the negative 90°, what motion is the whale moving?

Tilt to the right; right lateral roll

**Describe the movement of the whale in terms of depth. (ascending or descending)**

The pitch of the whale first descends, ascends, descends, ascends, descends, then ascends. This means that the whale creates a downward to upward pattern 3 times.

**Does the whale complete a lateral roll? Left or right?** Yes, left lateral roll