**Supplementary Activity**

**Unit 6 Investigation 6**

**How Fast Are You Spinning?**

Open the file**:** <http://tube.geogebra.org/material/simple/id/1503403>

Our Earth is always spinning. Yet, j*ust how fast* is earth rotating? Everyone on Earth spins 360 degrees in a 24 hour period. 360 degrees / 24 hrs = 15 degrees per hour. This is Earth's **angular speed** (*amount of rotation* per *unit time*). This remains constant.

Yet what's **not constant** is one's **linear speed** (*distance traveled* per *unit time*). In a 24 hour period, we all--(unless we're flying a great distance in an airplane)--"spin along" a circle of latitude. Some circles of latitude are bigger than others. (Observe in the applet below.) Since this is the case, we **cannot all have the same linear speed** as every other person on the planet!

**Let's assume Earth to be a perfect sphere** (*for simplicity's sake!*) According to NASA's website (http://solarsystem.nasa.gov/planets/profile.cfm?Display=Facts&Object=Earth), Earth has a **mean radius of 3,958.8 miles.**

To successfully answer the 2 questions in this applet, all you will need is the following:

1) The latitude of your location

2) A good working knowledge of some basic geometry formulas.

3) A good working knowledge of basic right-triangle trigonometry. Have fun with this! **(*Don't check a checkbox before answering the question that precedes it!*)**

Show how you calculated your linear speed in the space below. Does you answer agree with the answer you get when you check the second box?