**PILLBUG PREFERENCES**  
 *Armadillidium vulgare*

Pillbugs, roly poly, doodlebugs  
 **Geographic Range:** Pillbugs are found in temperate climates throughout the world including United States, Australia, Europe, India, Japan, and Africa. There are 4 species that live in South Dakota.

**Habitat:** You have probably seen them in your basement or garden, where they live under stones, leaves, or bark. They hide in damp places during the day and are active at night.

**Classification:** Pillbugs are Arthropods, NOT insects. They are CRUSTACEANS that live on land and are more closely related to other familiar crustaceans including lobsters, crabs, and shrimp.

**Physical Description:** All arthropods have a tough outer cuticle, segmented body, and jointed legs.  Pillbugs have 7 pairs of legs, antennae, and breathe with sets of overlapping gills found on the underside of their bodies. Pillbugs in North America vary from gray to brown in color.

**Blue Blood:** Many crustaceans have hemocyanin in their blood. Unlike our hemoglobin, which contains iron, hemocyanin contains copper ions. When oxygenated, pillbug blood appears blue.

**Respiration:** Like their marine cousins, terrestrial pillbugs use gill-like structures to exchange gases. They require moist environments to breathe, but cannot survive being submerged in water.

## Molting: Organisms with hard exoskeletons must molt to grow bigger. Pillbugs molt in sections. First, the back half splits and slides off. A few days later, the front section is shed. If you find a pillbug that's gray or brown on one end, and pink on the other, it's in the middle of molting. During molting they are more vulnerable to predation and DESSICATION (drying out).

**Reproduction**: Females carry the fertilized eggs in a fluid filled pouch (MARSUPIUM) on their abdomen. Upon hatching, tiny juveniles stay in the pouch for several days before leaving to explore the world. Females can have 2-3 broods per year averaging 100 offspring.

**Life span:** Average 1.5 years; can live up to 3 years.

**Food Habits:** Pillbugs are omnivores; feeding on fungi, live/dead plants, and other arthropods. Pillbugs also eat feces, including their own. Each time a pillbug poops, it loses a little copper, an essential element it needs to live. To recycle this precious resource, a pillbug will consume its own poop (COPROPHAGY).

**Defense:** Body armor, glands that release unpleasant secretions, and camouflage. They are famous for curling up into a tight ball for defense called *CONGLOBATION*. Known predators are: Centipedes, spiders, ants, birds, amphibians, basically anything that eats invertebrates.

**Ecosystem Roles**: Pillbugs are detritivores and play an important role in recycling nutrients in ecosystems. They part of the community of species including earthworms, snails, and millipedes that break down dead plants and animals.

*Animmal Diversity Web University of Michigan Department of Zoology  
http://www3.northern.edu/natsource/INVERT1/Pillbu1.htm  
http://insects.about.com/od/isopods/a/10-facts-pillbugs.htm*

GROUP MEMBERS \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
  
Hypothesis: Your hypothesis should be in the form “Pillbugs will. . . .. because . . . “  
  
Day 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
  
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Day 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

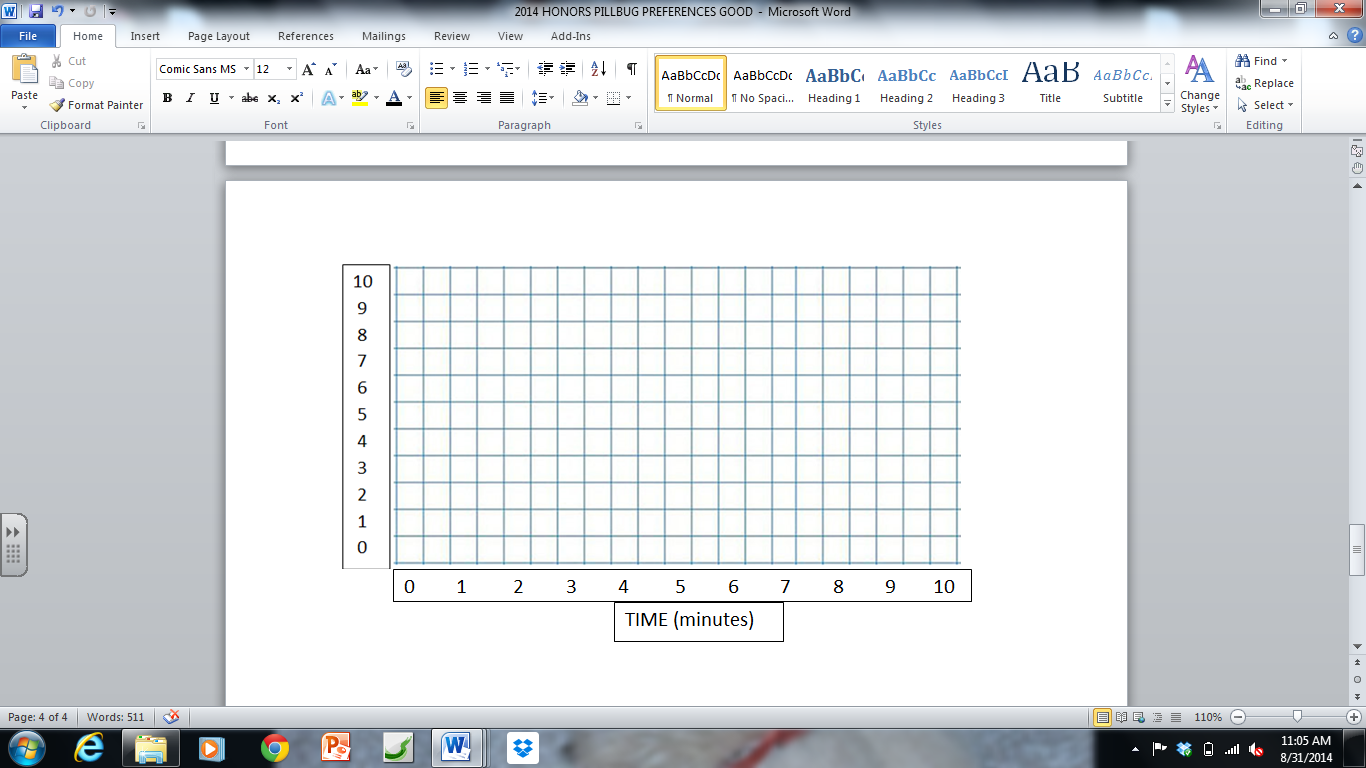


PILLBUG PREFERENCES

SIDE A = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

SIDE B = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

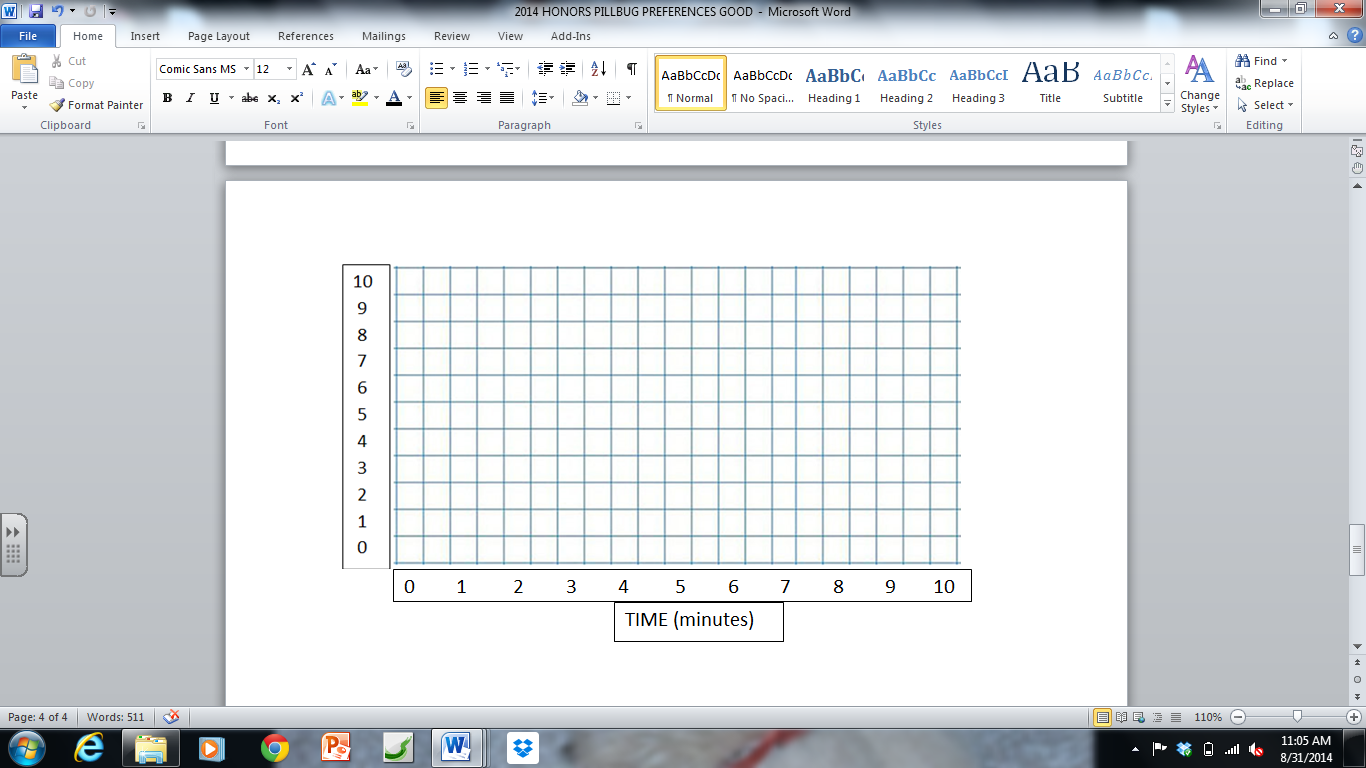
TRIAL 1



NUMBER OF PILLBUGS

SIDE A = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

SIDE B = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 TRIAL 2

**ANALYZE DATA**Describe what method you used to determine whether the pillbugs had a preference.  
(Count boxes? Average time-point counts, something else?)

**CONCLUSIONS- Write 2-3 complete sentences to explain what happened**  
Did the pillbugs show a preference ? Was your hypothesis for Day 1 correct?   
WHAT IS YOUR EVIDENCE?

Did the pillbugs show a preference on Day 2? Was your hypothesis for Day 2 correct?   
WHAT IS YOUR EVIDENCE?

ANY ADDITIONAL INFORMATION?