



Florida Agriculture
in the Classroom, Inc.
AGRICULTURE KEEPS
FLORIDA GREEN

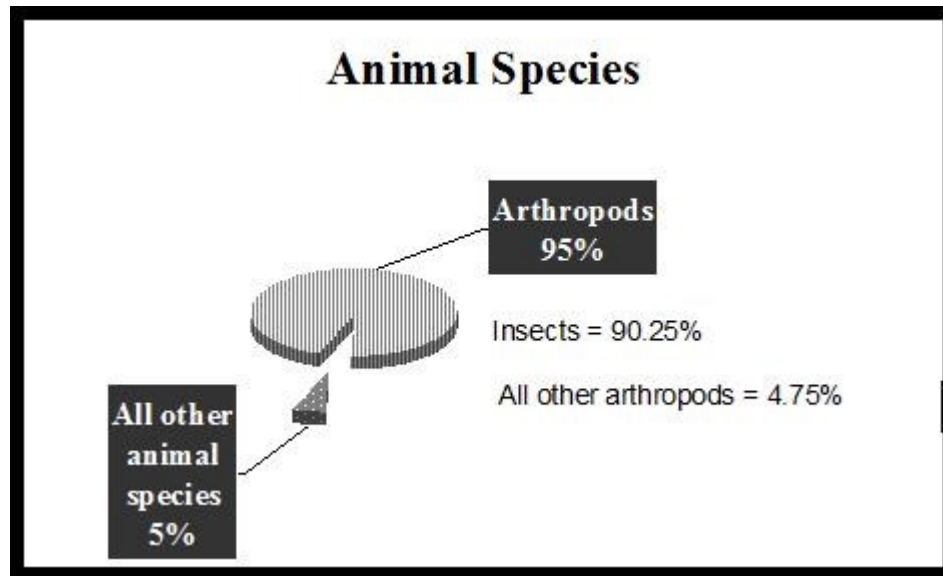
Insect Math

Name _____

Select the correct operation to calculate the answer to these questions. Please show your work.

1. Scientists have identified 920,000 species of insects. Each year about another 2,000 species are added by taxonomists, if all is going well. It is estimated that there are 20 to 30 million species of insects on the planet. What is the minimum amount of time it will take to identify, classify, and name all of the earth's insect species?
2. Some species of insects swarm when they become adults. In one of the largest locust swarms recorded, it was observed that the swarm was a half-mile high in height, 100 miles wide and 300 miles long. It passed overhead at a rate of 5 miles per hour and took 6 hours to pass any given location. If there were 27 locusts per cubic yard as was estimated, how many total insects were there in the swarm? Hint you need to first calculate the number of cubic yards in the swarm.
3. Scientist Glenn Herrick found that the cabbage aphid had an average of 41 offspring per female and the aphid could produce 16 generations from the first of April through the 31st of October, its normal breeding season. How many offspring could this one female produce?
4. If the first group of offspring could begin to reproduce 30 days after it hatches, how many total offspring could be produced by the first aphid's first hatching if they all lived? (*Hint: calculate how many days it takes to produce one generation, the number of days the first generation has to reproduce and number of generations they are capable of producing. Then you can calculate their offspring number.*)

Use this pie graph to answer question 5, 6 and 7.



5. According to this pie graph what percentage of all animal species are arthropods?

6. What percent of those animals are insects?

7. Calculate the percentage of arthropods that are insects.

ANSWER KEY

1. Scientists have identified 920,000 species of insects. Each year about another 2,000 species are added by taxonomists, if all is going well. It is estimated that there are 20 to 30 million species of insects on the planet. What is the minimum amount of time it will take to identify, classify, and name all of the earth's insect species?

10,000 years

2. Some species of insects swarm when they become adults. In one of the largest locust swarms recorded, it was observed that the swarm was a half-mile high in height, 100 miles wide and 300 miles long. It passed overhead at a rate of 5 miles per hour and took 6 hours to pass any given location. If there were 27 locusts per cubic yard as was estimated, how many total insects were there in the swarm? Hint you need to first calculate the number of cubic yards in the swarm.

124 billion locusts

3. Scientist Glenn Herrick found that the cabbage aphid had an average of 41 offspring per female and the aphid could produce 16 generations from the first of April through the 31st of October, its normal breeding season. How many offspring could this one female produce?

676 aphids

4. If the first group of offspring could begin to reproduce 30 days after it hatches, how many total offspring could be produced by the first aphid's first hatching if they all lived?

If the first aphid could produce 16 generations in 214 days, it takes 13.4 days to produce one generation. So, the first generation aphids can reproduce after 30 days and have 184 days to produce offspring. This results in 13 generations of offspring and results in 533 new aphids.

5. According to this pie graph what percentage of all animal species are arthropods?

95%

6. What percent of those animals are insects?

90.25%

7. Calculate the percentage of arthropods that are insects.

Approximately 95% of all Arthropods are insects.