

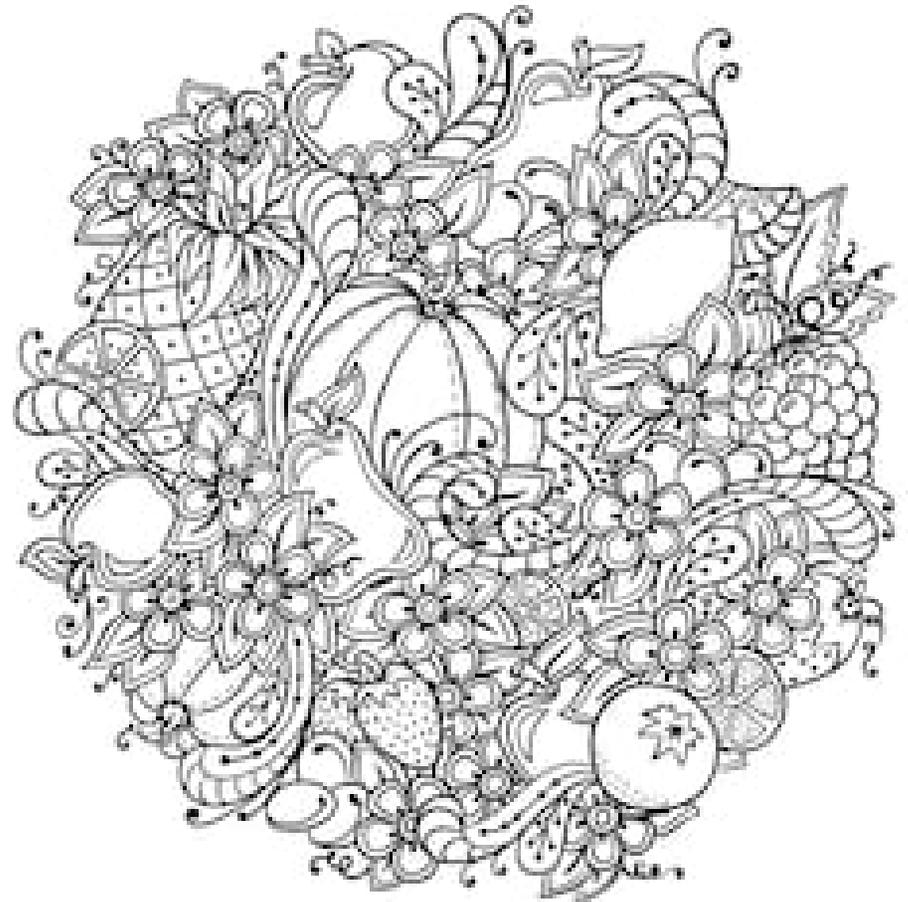
# JUNIOR FARMER PROGRAM



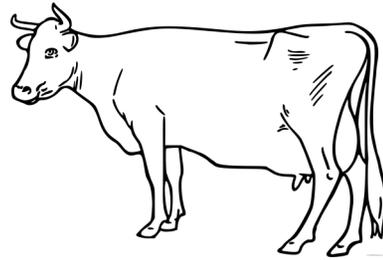
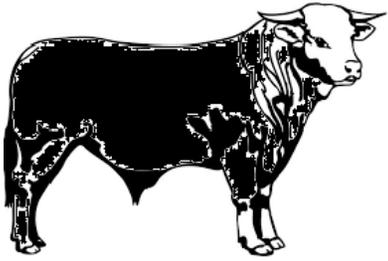
ALLEN COUNTY  
soil and water conservation  
DISTRICT

Please return this to the Allen County Soil and Water Conservation District to receive a Junior Farmer patch and certificate.

Indiana State Science Standards covered:  
SEPS.2, SEPS.4, SEPS.5, SEPS.6,  
SEPS.7, SEPS.8, 3.ESS.2, 3.LS.1, 3.LS.2, 3.LS.3,  
3.LS.4, 3-5.E.1



THIRD GRADE



Steve is a mostly black, male cow. Sally is a white, female cow. If Steve and Sally produced a baby cow, what do you think it would look like? Draw what you think below.

Offspring inherit traits from their parents, like coloration. What traits have you inherited from your parents? Are there traits you inherited that you cannot see?

What does a cow need to live?

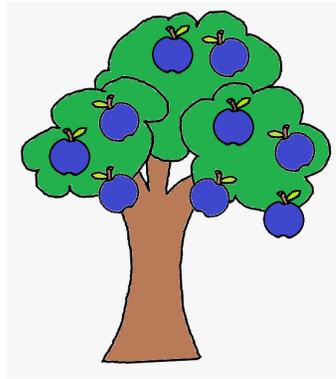
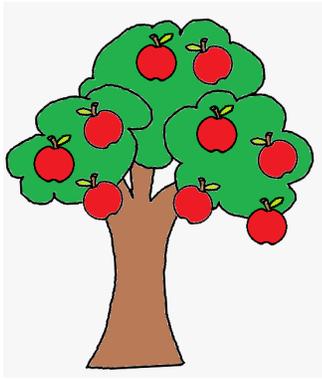
What features of a cow help it to survive on the outside? Does it have special fur or special skills?

What features of a cow help it to survive on the inside?

Why are these things important?

When it is cold outside, cows can stand very close together. Why do they do this?

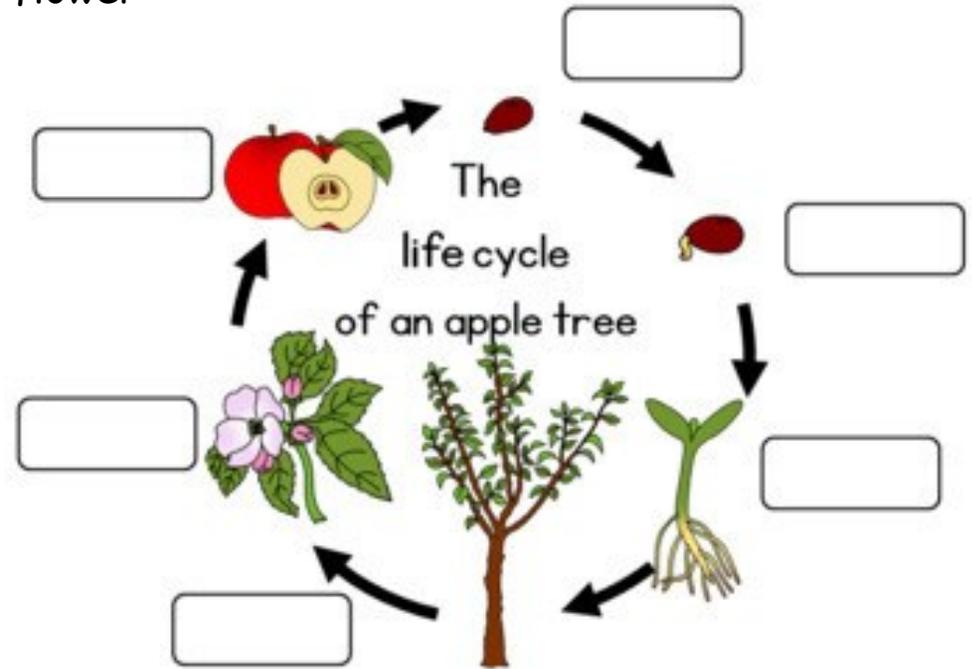
Is it better for animals to live in groups or live alone? Why or Why not?



Imagine an apple tree that produces red apples and an apple tree that produces blue apples. If these trees were cross-pollinated, meaning they shared their genes with each other, what colors of apples could be produced?

Draw what you think this tree would look like below. What things are the same about the trees regardless of what color the apples are?

Place the following words in the right blanks:  
tree, seedling, seed, germinated seed, fruit, flower



What does an apple tree need to grow, develop, and reproduce?

Are these the same needs as other plants?  
Other trees?

Plants need soil, sun, and water to grow. But, erosion keeps plants from receiving the best soil for them to grow.

**Erosion** is when weather blows or washes away the top soil. There are less nutrients for plants.

**Cover crops** are plants that help with erosion by keeping soil in place when it is not in use by farmers.

Luis has a cucumber farm. He has a problem with erosion. What could he do to stop erosion? Brainstorm some ideas:

If Luis decided to use cover crops to fight erosion, which plants could he use? Use the chart below.

<b>Radish</b>	Removes Nitrogen	Fights Weeds
<b>Crimson Clover</b>	Provides Nitrogen	Fights Erosion
<b>Red Clover</b>	Provides Nitrogen	Fights Erosion
<b>Cereal Rye</b>	Removes Nitrogen	Fights Weeds

Which seeds should Luis use that has the qualities he needs but is also the cheapest?

<b>Radish</b>	Removes Nitrogen	Fights Weeds	\$5.00 per acre
<b>Crimson Clover</b>	Provides Nitrogen	Fights Erosion	\$10.00 per acre
<b>Red Clover</b>	Provides Nitrogen	Fights Erosion	\$7.00 per acre
<b>Cereal Rye</b>	Removes Nitrogen	Fights Weeds	\$15.00 per acre

Luis also has to hire someone to plant the seeds for him. Luis owns 50 acres. It costs \$10.00 per acre for someone to plant the seeds. How much will it cost for Luis to hire the planter?

Calculate how much it will cost for cover crop seeds. (Note: 50 acres x the seeds you chose).

Luis only has 1000 dollars to spend. Will he have enough money to buy seeds and hire a planter? How much will he spend?

Solve the following problems. Use the cover crop chart below to help you.

<b>Alfalfa</b>	Provides Nitrogen	Fights Erosion	\$10.00 per acre
<b>Barley</b>	Removes Nitrogen	Fights Erosion	\$12.00 per acre
<b>Millet</b>	Provides Nitrogen	Fights Erosion	\$8.00 per acre
<b>Cereal Rye</b>	Removes Nitrogen	Fights Weeds	\$10.00 per acre

Alessandra has 50 acres of land. She plants 25 acres each of tomatoes and cucumbers. Tomatoes love nitrogen-rich soil. Cucumbers do not like nitrogen.

Alessandra has problems with erosion, what should she do to fix this problem? Brain storm some ideas:

If Alessandra decides to use cover crops, which cover crops would be best to fight her erosion?

How much would it cost to plant those cover crops?

Solve the following problems. Use the cover crop chart to the left to help you.

Alessandra has planted one type of cover crop for her whole farm to fight the erosion. Now, her cucumber plants are suffering. Why do you think that is?

What could she do to help her cucumbers?

She contacted her local soil specialist and he said that the soil where her cucumbers are planted has too much nitrogen. Which cover crop would you recommend Alessandra using for her cucumbers?

If Alessandra uses one cover crop for her tomatoes and a different cover crop for her cucumbers, which would she use?

What is the cost of the cover crop for tomatoes? What is the cost of the cover crop for the cucumbers?