People in the Agriculture, Food & Natural Resources cluster work with the land, water, plants, trees and animals. In many of these jobs, a lot of time is spent outdoors studying nature.
Agriculture, Food & Natural Resources

Pesticide Handlers, Sprayers & Applicators, Vegetation
Soil & Plant Scientists
Agricultural & Food Science Technicians
Biological Technicians
Buyers & Purchasing Agents, Farm Products
Foresters

Pesticide Handlers, Sprayers & Applicators, Vegetation

Pesticide handlers, sprayers and applicators work with chemicals that kill weeds, bugs or other animals that harm plants. They apply the chemicals to trees, plants, lawns or crops. These chemicals are called pesticides. These chemicals can be dangerous. They take training to learn about the chemicals. They wear protective gear to keep them safe when using these chemicals.

Before the sprayer can apply pesticides, he needs to know how big the fields are. Find the area of the fields. Which one will need more pesticide?

Hint: To find the area of a rectangle, multiply the width times the height.

Old MacDonald’s field 7 miles 3 miles
Young MacDonald’s field 4 miles 6 miles

Soil & Plant Scientists

Soil scientists study the things that make up soil. Soil is made up of air, water, rocks, minerals and organic matter. Different plants and crops need different types of soil to grow. Soil scientists figure out the best soil for a plant. Some of them figure out how to stop soil erosion. Plant scientists study plants and how they grow. Some plant scientists make plants healthier. Others figure out how to get rid of bugs that harm plants. They work in offices and labs. They also spend time outdoors.

Match the descriptions to these things that make up parts of soil.

Topsoil A small round stone
Silt Fine sand, soil or mud carried by flowing water. It sinks to the bottom of rivers, lakes, etc.
Sand The top layer of soil. You can find plant’s roots here.
Pebble Loose grains of finely ground rock. You can find a lot at beaches and deserts.
School Rules: (How much education do you need?)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>High School</th>
<th>Some Beyond High School</th>
<th>Associate Degree</th>
<th>Bachelor's Degree</th>
<th>Advanced Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pesticide Handlers, Sprayers &amp; Applicators, Vegetation</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil &amp; Plant Scientists</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural &amp; Food Science Technicians</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Biological Technicians</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Buyers &amp; Purchasing Agents, Farm Products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Foresters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Agricultural & Food Science Technicians

These technicians help agricultural and food scientists. Agricultural technicians study crops and farm animals. Some measure and test farm products. Food science technicians research foods and food production. Some create foods. Others analyze foods to see how much fat, sugar and fiber is in them. They work in labs, processing plants, farms, ranches and offices.

Answer the questions about these nutrition labels.

**Nutrition Facts**

**Apple**
- Serving Size: 1 medium (182g)
- Calories 95
- Calories from Fat 3
- Total Fat 0g
- Saturated Fat 0g
- Cholesterol 0mg
- Sodium 0g
- Total Carbohydrate 25g
- Dietary Fiber 4g
- Sugars 19g
- Protein 0g
- Vitamin A 2%
- Vitamin C 14%
- Calcium 1%
- Iron 1%

**Corn**
- Serving Size: 1 small ear (89g)
- Calories 96
- Calories from Fat 3
- Total Fat 1g
- Saturated Fat 0g
- Cholesterol 0mg
- Sodium 0g
- Total Carbohydrate 22g
- Dietary Fiber 2g
- Sugars 3g
- Protein 0g
- Vitamin A 5%
- Vitamin C 9%
- Calcium 0%
- Iron 2%

**Chicken Nuggets**
- Serving Size: 4 pieces (64g)
- Calories 190
- Calories from Fat 108
- Total Fat 12g
- Saturated Fat 3g
- Cholesterol 35 mg
- Sodium 367g
- Total Carbohydrate 10g
- Dietary Fiber 1g
- Sugars 1g
- Protein 10g
- Vitamin A 0%
- Vitamin C 1%
- Calcium 1%
- Iron 3%

Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

Which food has the most sugar? Which food has the most iron?

Which food has the least sodium? How many chicken nuggets are in one serving?
Biological Technicians

Biological technicians help scientists who study living things. They collect samples and materials. They do experiments and tests. Some work on medical research to find cures for diseases. Others work with companies and help make drugs that treat illnesses. Some test water, blood, food, drugs and plants.

Biological technicians gather data. They use the data to answer questions. Write down the hair colors of your classmates. Answer the questions about your data.

<table>
<thead>
<tr>
<th>Hair Color</th>
<th>Tally of Students</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blonde</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Which hair color do most students have? ______________________________

Which hair color do the fewest students have? ______________________________

Buyers & Purchasing Agents, Farm Products

Farm product buyers and purchasing agents buy things like grain, milk, animals or trees from farmers, ranchers, tree farms, etc. They search for sellers who provide them with high-quality products at the best prices. Sometimes they resell the item at a higher cost. Other times they take the item and use it to make another product.

Grain is $5 per bag. You need to buy three bags of grain. You have $50 to spend. Will you also be able to buy seven ducklings that are $4 each?
Foresters

Foresters take care of forests, grasslands and shelterbelts. They also figure out how people can use these kinds of lands. They study how plants and trees interact with the area around them. They make notes about trees and other resources in an area. Some create plans to plant trees.

Have you seen the rings on a tree stump? The rings tell the tree’s life story. Each year a ring is added when the tree grows wider. A forester knows how to “read” the rings and can follow a tree’s health and history over many years.

Draw “tree rings” in the stump to show your age. Label any years when important events took place, like when you started school, etc.

How Much Does it Pay?

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>More than $30.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$25.00-$30.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$20.00-$25.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$15.00-$20.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $15.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Keep your “career antennae” up!

Land on the website below to explore many more careers in this same cluster. And we have 15 other career clusters to explore together!

dlr.sd.gov/careerclusters