BIO-SECURITY in 4-H Animal Science
A Project Curriculum  ◆  Volunteer Guide for 4-H Youth Ages 9–11

Maps, Good Recordkeeping, and Tracking Animal Movement

Curriculum Overview

Animal Science projects are a cornerstone of the 4-H Youth Development Program. Many 4-H youth enroll in these projects, and the majority focus on the rearing and husbandry of market animals, including poultry, ruminants, and swine.

The activities in Module 1 of this curriculum teach youth how contagious diseases spread among livestock. Module 2 focuses on recognizing and addressing disease risks that are present at home or at any given fair or livestock event. Modules 3A and 3B (choose one or the other for your group) have activities that address the issue of tracking animal movement, including the use of Global Positioning System (GPS) technology in 3B.
Subject Overview and Background Information

How do you read and find a point on a map? What you should look for first are the vertical and horizontal lines on the map. The vertical lines (running up and down) are called longitude lines and the horizontal lines (running left to right) are called latitude lines. One longitude line in particular, known as the Prime Meridian (or the Greenwich Meridian [pronounced gren-itch], because it runs through Greenwich, England), divides the earth into the Eastern and Western Hemispheres. The latitude line that divides world maps into the Northern and Southern Hemispheres is called the equator.

The earth is a sphere, and cartographers divide its area into 360 degrees (360°) of longitude, running 180° to the west and 180° to the east from the Prime Meridian (0° longitude). North-south measurements begin with 0° latitude at the equator and go up to 90° north at the North Pole and down to 90° south at the South Pole. N or S must be written to distinguish north from south latitude, and E or W must always be written to distinguish east from west longitude.

A point on a map where a longitude and a latitude line intersect (cross) is called a coordinate. For example, the general coordinates for Paris, France, are 48°N, 2°E. The first part of the coordinate shows degrees (°) latitude, indicating the relationship of that location to the equator (N or S). The second part of the coordinate shows degrees longitude, indicating the relationship of that location to the Prime Meridian (E or W). Together, these determine the point of your location. By knowing different coordinates, you can use maps or Global Positioning System (GPS) and Geographic Information System (GIS) technologies to identify any point on the globe.

While maps are useful for finding different points or locations, they are also useful because they provide directions to help you find your way from one point to another. When looking at a map, the first things you should determine are the cardinal directions (north, south, east, and west) by looking at the map’s compass rose. This will help you determine your orientation on the map. Next, find the scale of the map. This gives you a reference for the actual distance from one map point to another. The scale will be different depending on the type of map you use. Looking at a legend will help you determine what the different symbols on a map represent.

Activity Concepts and Vocabulary

- **Cardinal directions:** The cardinal directions are north, south, east, and west. North and south are determined by the position of the North and South Poles. East and west are determined by the earth’s rotation.
- **Cartographer** (pronounced kahr-tog-ruh-fer): A person who develops maps.
- **Compass rose:** A circular symbol that is found on a map and indicates the directions of north, south, east, and west.
- **Coordinate** (pronounced koh-awr-dn-it): A set of numbers used to determine the position of a point on a map.
- **Equator:** A horizontal (east-west) line at 0° latitude that divides the earth into equal Northern and Southern Hemispheres.
- **Hemisphere:** One half of a sphere or globe.
- **Intersection:** The point where two lines (longitude and latitude) cross each other on a map.
**Purpose of Activity**
To understand the coordinate system and learn how to use a map by focusing on scaling and directions.

**Overview of Activity**
This activity is separated into two parts. Part 1 introduces youth to coordinates, latitude, and longitude. Youth will discover the importance of latitude and longitude lines on a map and learn how to use these lines to determine coordinates of a point. Part 2 will address the concepts of scaling and direction. By looking at different maps, youth will learn how to interpret information on a map and will also learn how different types of maps are helpful in different situations. This will link to the use of mapping with GPS technologies. (If you have access to GPS devices for participants to use, try using Module 3B [ANR Publication 3441] instead of this one.)

**Time Required**
40 to 60 minutes.

**Suggested Grouping**
Pairs or small groups of 3 to 4.

**Materials Needed**
(* = Materials provided in curriculum)
- * Simple Map of California (See appendix)
- * Detailed Map of California (See appendix)
- * Map of United States (See appendix)
- Rulers
- Pencils, pens, or markers
- Flip chart paper

**Getting Ready**
- Make enough copies of the Simple Map of California so half of the groups can receive a copy.
- Make enough copies of the Detailed Map of California so each group has a copy.
- Make enough copies of the Map of United States so each group has a copy.
- Make sure you have enough rulers for each group.

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**Life Skills**
- **Head:** Critical thinking, problem solving, learning to learn, planning/organizing, wise use of resources.
- **Heart:** Communication, cooperation, sharing.
- **Hands:** Contributions to a group effort, teamwork.
- **Health:** Self-discipline, self-esteem.

**California Educational Content Standards**
- Third Grade:
  - ✓ Investigation and Experimentation – 5c
- Fourth Grade:
  - ✓ Investigation and Experimentation – 6b
- Fifth Grade:
  - ✓ Investigation and Experimentation – 6g
- Sixth Grade:
  - ✓ Investigation and Experimentation – 7f

**Subject Links**
Science, Math, and Language Arts.
• Make sure you have enough flip chart paper and pencils, pens, or markers for each youth.

Opening Questions

1. If you are trying to describe the specific location of an object in your bedroom (e.g., on a bookshelf, in a drawer) to someone, what do you think are some useful ways to do this? Please write your responses on the flip chart paper provided.

2. If your friend is traveling by car or bicycle to a place he or she has never been, describe what he or she might need to know and how you might go about giving him or her directions. Please write your thoughts and ideas on the flip chart paper provided.

3. If you were going on a trip to a new place, how might you find out how to get there? Please write your responses on the flip chart paper provided.

4. What are some things you know about maps and the information you can find on them? Please write your responses on the flip chart paper provided.

PART 1: Procedure (Experiencing)

1. Divide the group of youth in half. Within each half, have the youth work in small groups of 3 or 4 individuals.

2. Distribute the Simple Map of California to half of the youth; pass out the Detailed Map of California to the other half of the group.

3. Have each small group of 3 or 4 describe in as much detail as they can the location of the following cities in relation to each other. Please ask them to write their responses on the flip chart paper provided.
   ✓ San Francisco and Sacramento
   ✓ Sacramento and Fresno
   ✓ Fresno and San Francisco

PART 1: Sharing, Processing, and Generalizing

Follow the lines of thinking developed by the youth as they share and compare their thoughts and observations. If necessary, use more targeted questions as prompts to get to particular points. Specific questions might include:

1. Ask the different small groups to share how they described the location of one of the cities in relation to the other.

2. Which small group’s description do you think is the most useful? Why?

PART 2A: Procedure (Experiencing)

1. Pass out the Map of the United States to each group.

2. Ask the youth to find the major city closest to each of these two points: 123°W, 38°N and 118°W, 34°N.
   ✓ Volunteer Tip: The correct answers are San Francisco and Los Angeles.

3. Noting the scale on the map (usually at the bottom near the legend), have the youth use the rulers to estimate the distance between the two cities.

PART 2A: Sharing, Processing, and Generalizing

Follow the lines of thinking developed by the youth as they share and compare their thoughts and observations. If necessary, use more targeted questions as prompts to get to particular points. Specific questions might include:

1. How did you find these points? Please explain.

2. What do you know about the horizontal and vertical lines and the points where they cross?
   ✓ Volunteer Tip: Listen for the terms latitude, longitude, and coordinates.

3. How did you figure out the distance? What does one inch on this map represent?
4. If you were traveling from the first point to the second, in which direction would you be traveling? Have them explain their method.
✓ Volunteer Tip: The correct answer is southeast.

PART 2B: Procedure (Experiencing)

1. Pass out copies of the Detailed Map of California to each group that previously had the Simple Map of California.
2. Have the youth find the same two points/cities on this map (123°W, 38°N and 118°W, 34°N) as on the previous map.
3. Noting the scale on this map, have them again estimate the distance between the two points.

PART 2B: Sharing, Processing, and Generalizing

Follow the lines of thinking developed by the youth as they share and compare their thoughts and observations. If necessary, use more targeted questions as prompts to get to particular points. Specific questions might include:

1. **What is different about this map compared to the previous map? Please describe.**
2. **Which map do you think made it easier to use to find the distance between these two cities? Please explain why.**

Concept and Term Introduction

At this point, volunteers need to ensure that the concepts and terms **cardinal directions** (north, south, east, west), **cartographer, compass rose, coordinate, equator, intersection, latitude, longitude, orientation, point, Prime Meridian, and scale** have been introduced. **(Note: The goal is to have the youth develop these concepts through their own exploration and define the terms using their own words.)**

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Maps, Good Recordkeeping, and Tracking Animal Movement

**Activity Concepts and Vocabulary**

- **Bio-security**: Precautions taken to protect a living thing (e.g., humans, animals, or plants) from attack or interference due to biological organisms that have the potential to cause them harm. A less formal definition for bio-security is "Keeping the bad bugs off the farm."

- **Direct contact**: Physical contact between an ill person or animal and a healthy person or animal.

- **Indirect contact**: When an uninfected person or animal touches the contaminated surface of an inanimate object (e.g., a food dish or tabletop) that has previously come into contact with an infected person or animal.

- **Traceback**: The process of tracking the places where an animal has been.

**Subject Overview and Background Information**

4-H Animal Science projects are potential bio-security risks. The majority of 4-H Animal Science projects focus on the rearing, husbandry, and, in many cases, showing and marketing of live animals, including poultry, ruminants, and swine. In most cases, 4-H members house their animals at home or in shared facilities, meet collectively as a club once or more every month, and convene in larger groups on exhibition days and at county or state fairs. Because backyard flocks and herds serve as potential vectors of disease, these public venues represent a significant bio-security risk.

Maintaining records of animal movement is critical to helping prevent the spread of disease. If an animal at a fair or show were to be infected with a disease, access to information that accurately describes the animal’s movements would be very useful for a step known as a **traceback**. In a traceback, you can see where the animal has traveled and determine which other animals may have been exposed to the disease and may have become infected.

**Life Skills**

- **Head**: Keeping records, critical thinking, problem solving, decision making.

- **Heart**: Sharing, cooperation, communication.

- **Hands**: Contributions to group effort, teamwork.

- **Health**: Disease prevention, personal safety.

**California Educational Content Standards**

- **Third Grade**: ✓ Investigation and Experimentation – 5c, 5e
- **Fourth Grade**: ✓ Investigation and Experimentation – 6c
- **Fifth Grade**: ✓ Investigation and Experimentation – 6g, 6h
- **Sixth Grade**: ✓ Investigation and Experimentation – 7b, 7f

**Subject Links**

Science and Language Arts.
Purpose of Activity
To understand the importance of assessing and managing the factors that increase the risk of disease transmission, as well as how a good strategy for keeping accurate records can help with your traceback efforts when you need to locate the source and site of infection in the event of a disease outbreak.

Overview of Activity
In this activity, youth will simulate travel to different fairs with project animals. Through this experience, they will develop an understanding of how the act of taking their animals to multiple fairs or shows increases their risk of exposure to disease. They will also understand how important it is for them to keep accurate records to assist in traceback efforts.

Time Required
60 minutes.

Suggested Grouping
5 small groups or pairs.

Materials Needed
(* = Materials provided in curriculum)
- * Longitude/Latitude Degree Cards (See appendix)
- * Coordinates for Homes and Fairs (See appendix)
- * Home and Fair Name Labels (See appendix)
- Something to hold down the labels (rocks, tape etc.)
- Colored paper (8½ x 11 inch sheets of construction paper in blue, purple, green, red, and orange)
- * Tracking Sheets
- * Volunteers: Tracking Sheets Key
- * Detailed Map of California
- * Animal Contact Record Sheet (Concept Application)
- Five medium or large plastic cups
- Flip chart paper
- Pencils, pens, or markers
- A clipboard for each group (optional)

Getting Ready
- Copy and cut the Home and Fair Name Labels and Longitude/Latitude Degree Cards.
- Make enough copies of Coordinates for Homes and Fairs sheet so each group has a copy.
- Cut colored construction paper into 16 squares for all five colors, and then crumple the squares to form wads.
- Make enough copies of the Animal Contact Record Sheet so each youth has at least one copy of the sheet (Concept Application).
- Make sure you have enough flip chart paper and pencils, pens, or markers for each group.
- Identify a large area (e.g., school playground, gymnasium, multi-purpose room) where youth can construct a map of California. Using the Longitude/Latitude Degree Cards (held down by rocks, tape, etc. if necessary) and a copy of the Detailed Map of California, construct a large map of California. (Note: If possible, the map should be at least the size of a basketball court.) Once the Longitude/Latitude Degree Cards have been arranged, place the Home and Fair Name Labels at the appropriate points on the large map using the Coordinates for Homes and Fairs handout (appendix) and the Detailed Map of California as guides.
- Divide the youth into 5 pairs or 5 groups of 2 to 4 youth and designate each group with a color (blue, purple, green, red, and orange).
- Provide each group with a copy of the Detailed Map of California.
- Provide each group with Tracking Sheets. Each Tracking Sheet has a designated color. Provide a copy of the Tracking Sheet to each group according to color.

Opening Questions
1. When considering disease, disease spread, risk assessment, and bio-security, how might these concepts relate to you personally with respect
to your Animal Science projects? Please write your responses on the flip chart paper provided.

2. If it were your job to be a health inspector, what information do you believe would be important for you to know in order to monitor or control disease spread? Please write your responses on the flip chart paper provided.

Procedure (Experiencing)

Once the large map has been created, ask the youth to review their Tracking Sheets. Have all participants identify their “home” on the large map, their animal’s identification (the color of their paper wads), the number of rounds, and the number of steps per round. Have them take note of the coordinates that are given to them and the data that are left for them to record (the name of the fair and the other “animals” [colors] present at the fair).

✓ Volunteer Tip: It is important that the person facilitating this activity keep track of the different rounds and the number of colored pieces of paper that are exchanged between groups throughout the activity.

Round 1

1. Standing near their home city, ask the youth to locate Fair 1 on their Detailed Map of California using the coordinates provided on their Tracking Sheet.

✓ Note: Find the county fair closest to the coordinates provided.

2. Ask the youth to find this fair’s location on the large map and visit it, taking with them their cups full of wads of colored paper.

3. When each group has reached this fair, ask them to exchange wads of colored paper with any other groups at the same fair. They should exchange 1 wad of their colored paper with each group.

4. Ask the youth to fill in the appropriate information on their Tracking Sheet and then return home.

5. Once everyone has reached their home, have the Volunteer draw one color at random. Tell the youth that the animals with this color were infected with a disease that is passed from animal to animal via direct or indirect contact. Ask the youth to do a traceback using their Tracking Sheets. Their goal is to identify where and when their animal (color) came into contact with the infected animal(s).

6. Discussion: In addition to the animals that were identified as being sick, were any other animals infected? If so, which animals are they? Where were they infected? Ask the youth to explain. If the animals were not infected, ask the youth to explain why.

7. This is the end of Round 1. Ask each group to remove any wads of paper that are not of their original color and return those to their appropriate groups before they proceed to Round 2.

Round 2

1. Standing near their home city, ask the youth to locate Fair 1 on their Detailed Map of California using the coordinates provided on their Tracking Sheet.

✓ Note: Find the county fair closest to the coordinates provided.

2. Ask the youth to find this fair’s location on the large map and visit it, taking with them their cups full of wads of colored paper.

3. When each group has reached this fair, ask them to exchange wads of colored paper with any other groups at the same fair. They should exchange 3 wads of their colored paper with each group.

4. Ask the youth to fill in the appropriate information on their Tracking Sheet and then return home.

5. Next, ask the youth to locate Fair 2 on their Detailed Map of California using the coordinates provided on their Tracking Sheet.

✓ Note: Find the county fair closest to the coordinates provided.

6. Taking with them all of the wads of colored paper they collected from Fair 1 as well as their own colored pieces, ask the youth to locate Fair 2 and visit it.
7. When each group has reached the location of Fair 2, ask them to exchange wads of their own colored paper, plus any other-colored pieces they collected from Fair 1, with other groups at the same fair. They should give each group at that location 1 wad of paper of each color that they have in their cup.
8. Ask the youth to record the appropriate information on their Tracking Sheet and return home. Make sure that when they return home they still have colored pieces that they collected from Fair 1 and Fair 2.
9. Announce that the animals with the color ORANGE have been infected with a disease that is passed from animal to animal via direct or indirect contact. Ask the youth to do a traceback using their Tracking Sheets. Their goal is to identify where and when their animal (color) came into contact with infected animals.
10. Using their Tracking Sheets, have them return to their last fair. Once they have reached their last fair, have them discuss with other groups at the fair where and when their animal (color) came into contact with the infected animal. If there are no other groups at the fair, the members of the one group there can discuss this among themselves.
11. Starting from their last fair, have them repeat step 10 until they have done a traceback to all the fairs they have visited for this round. They should end at their home.
12. Discussion: Have the groups share information about whose animals were infected, where they became infected, and how they got infected. Then have them work as an entire group to brainstorm ideas on different ways their animal could have been infected.
13. This is the end of Round 2. Ask each group to remove any wads of colored paper that are not of their original color and return those to their appropriate groups. Then proceed to Round 3.

Round 3

1. Standing near their home city, ask the youth to locate their Fair 1 on their Detailed Map of California using the coordinates provided on their Tracking Sheet.

✓ Note: Find the county fair closest to the coordinates provided.

2. Ask the youth to find this fair’s location on the large map and visit it, taking with them their cups full of wads of colored paper.
3. When each group has reached this fair, ask them to exchange wads of colored paper with any other groups at the same fair. They should exchange 5 wads of their colored paper with each group.
4. Ask the youth to fill in the appropriate information on their Tracking Sheet and then return home.
5. Ask the youth to take all of the wads of colored paper they collected from Fair 1 as well as their own colored pieces, and then to locate Fair 2 and visit it. ✓ Note: Find the county fair closest to the coordinates provided.
6. When each group has reached the location of this fair, ask them to exchange wads of their own colored paper, plus any other-colored pieces they collected from Fair 1 with other groups at the Fair 2. They should give each group 3 wads of paper of each color that they have in their cup.
7. Ask the youth to record the appropriate information on their Tracking Sheet and then return home. Make sure that when they return home they still have colored pieces that they collected from Fair 1 and Fair 2.
8. Ask the youth to locate Fair 3 on their Detailed Map of California using the coordinates provided. ✓ Note: Find the county closest to the coordinates provided.
9. Taking with them their own colored pieces and all of the colors they collected from Fair 1 and Fair 2, ask the youth to locate Fair 3 on the large map and visit it.
10. When each group has reached the fair, ask them to exchange their own colored pieces of paper, plus any other-colored pieces they collected from Fair 1 and Fair 2, with other groups at the same fair. They should give each other 1 wad of each color that they have in their cup.
11. Ask the youth to record the appropriate information on their Tracking Sheet, and then return home. Make sure that when they return home they still have colored pieces that they collected from Fair 1, Fair 2, and Fair 3.

12. Announce that animals with the color RED were found to be infected with a disease that is passed from animal to animal via direct or indirect contact. Ask the youth to do a traceback using their Tracking Sheets. Their goal is to identify where and when their animal (color) came into contact with infected animals.

13. Have them return to their last fair using their Tracking Sheets. Once they have reached their last fair, have them discuss with other groups at the fair where and when their animal (color) came into contact with the infected animal. If there are no other groups at the fair, the members of the one group there can discuss this among themselves.

14. Starting from their last fair, have them repeat step 13 until they have done a traceback to all the fairs they have visited for this round. They should end at their home.

15. Discussion: Have the groups share information about whose animals were infected, where they became infected, and how they got infected. Then as an entire group, brainstorm ideas on different ways their animal could have been infected.

16. This is the end of Round 3. Ask each group to remove any wads of colored paper that are not of their original color and return those to their appropriate groups.

Sharing, Processing, and Generalizing

Follow the lines of thinking developed by the youth as they share and compare their thoughts and observations. If necessary, use more targeted questions as prompts to get to particular points. Specific questions/prompts might include:

1. Compare the data on the Tracking Sheets from Rounds 1, 2, and 3. What do you conclude from the information you recorded? Why were more colors present in one round than in another? What do you think the colored pieces of paper represented?

✓ Volunteer Tip: They represent contacts, direct or indirect, with other animals. Consult Volunteer’s Key if necessary.

2. This activity is staged. How might this play out if you and other members were actually transporting your animals to different fairs? Please explain your thoughts and ideas.

Concept and Term Introduction

At this point, volunteers need to ensure that the concepts and terms bio-security, direct contact, indirect contact, and traceback have been introduced. (Note: The goal is to have the youth develop these concepts through their exploration and define the terms using their own words.)

Concept Application

1. Provide the youth with the worksheet Animal Contact Record Sheet. This worksheet is to be used at their farm or on their property or at any club meeting, fair, show, or exhibition where the youth might transport and house their animals. Have the youth make observations and complete the worksheet as accurately as possible.

2. Have the youth discuss their completed worksheets and the possible risks to which their project animal may have been exposed. Then discuss different ways to reduce the risks.

✓ Volunteer Tip: Have the youth write the risks on flip chart paper or a white board, and then have a group discussion of possible ways to reduce the risk.
The activities in this curriculum were designed around inquiry and experiential learning. Inquiry is a learner-centered approach in which individuals are problem solvers investigating questions through active engagement, observing and manipulating objects and phenomena, and acquiring or discovering knowledge. Experiential learning (EL) is a foundational educational strategy used in 4-H. In it, the learner has an experience phase of engagement in an activity, a reflection phase in which observations and reactions are shared and discussed, and an application phase in which new knowledge and skills are applied to real-life settings. In 4-H, an EL model that uses a five-step learning cycle is most commonly used. These five steps—Experiencing, Sharing, Processing, Generalizing, and Application—are part of a recurring process that helps build learner understanding over time.

For more information on inquiry, EL, and the five-step learning cycle, please visit the University of California Science, Technology, and Environmental Literacy Workgroup’s Experiential Learning Web site, http://www.experientiallearning.ucdavis.edu/.

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What Is GIS? GIS.com.
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MAP OF UNITED STATES

Legend:
- States
- Border countries

Legend:
- States
- Border countries
Longitude/Latitude Degree Cards

124°W | 123°W | 122°W

121°W | 120°W | 119°W

118°W | 117°W | 116°W

115°W | | 43°N
| 42°N | 41°N | 40°N |
|------|------|------|
| 39°N | 38°N | 37°N |
| 36°N | 35°N | 34°N |
| 33°N | 32°N | 31°N |
## Coordinates for Homes and Fairs

(Note: These coordinates are approximations.)

| Home              | Coordinates                  |
|-------------------|------------------------------|
| Monterey         | Latitude: 36° N Longitude: 122° W |
| Sacramento       | Latitude: 39° N Longitude: 121° W |
| San Diego        | Latitude: 33° N Longitude: 117° W |
| San Luis Obispo  | Latitude: 35° N Longitude: 121° W |
| Santa Cruz       | Latitude: 37° N Longitude: 122° W |

| Fair              | Coordinates                  |
|-------------------|------------------------------|
| Amador County Fair| Latitude: 38° N Longitude: 121° W |
| Butte County Fair | Latitude: 40° N Longitude: 122° W |
| El Dorado County Fair | Latitude: 39° N Longitude: 120° W |
| Fresno County Fair | Latitude: 36° N Longitude: 119° W |
| Los Angeles County Fair | Latitude: 34° N Longitude: 119° W |
| Merced County Fair | Latitude: 37° N Longitude: 121° W |
| San Bernardino County Fair | Latitude: 35° N Longitude: 116° W |
| San Diego County Fair | Latitude: 33° N Longitude: 117° W |
| Santa Barbara County Fair and Exposition | Latitude: 35° N Longitude: 120° W |
| Sonoma-Marin County Fair | Latitude: 38° N Longitude: 123° W |
| Tehama District Fair | Latitude: 40° N Longitude: 123° W |
| Yuba-Sutter Fair  | Latitude: 39° N Longitude: 121° W |
Home Name Labels

Monterey

Sacramento

San Diego

San Luis Obispo

Santa Cruz
Fair Name Labels

Merced County Fair

Fresno County Fair

Santa Barbara County Fair and Exposition

San Bernardino County Fair
Fair Name Labels

Los Angeles County Fair

Yuba-Sutter Fair

Sonoma-Marin County Fair

El Dorado County Fair
Fair Name Labels

Amador County Fair

Butte County Fair

San Diego County Fair

Tehama District Fair
BLUE Tracking Sheet

**Home:** San Diego
- **Color:** Blue
- **Latitude:** 33° N
- **Longitude:** 117° W

### Round 1

| Name of the Fair         | Latitude | Longitude | Date   | Animals (colors) present | Wads of paper exchanged |
|--------------------------|----------|-----------|--------|--------------------------|-------------------------|
| FAIR 1:                  |          |           |        |                          |                         |
| San Bernardino County    | 35° N    | 116° W    | 7/20/05|                          | 1 wad of paper to each group at the fair |
|                          |          |           |        |                          |                         |

### Round 2

| Name of the Fair         | Latitude | Longitude | Date   | Animals (colors) present | Wads of paper exchanged |
|--------------------------|----------|-----------|--------|--------------------------|-------------------------|
| FAIR 1:                  |          |           |        |                          |                         |
| San Bernardino County    | 35° N    | 116° W    | 7/25/06|                          | 3 wads of paper to each group at the fair |
| FAIR 2                   |          |           |        |                          |                         |
| Los Angeles County Fair  | 34° N    | 119° W    | 8/02/06|                          | 1 wad of paper of each color to each group at the fair |

### Round 3

| Name of the Fair         | Latitude | Longitude | Date   | Animals (colors) present | Wads of paper exchanged |
|--------------------------|----------|-----------|--------|--------------------------|-------------------------|
| FAIR 1                   |          |           |        |                          |                         |
| Merced County Fair       | 37° N    | 121° W    | 8/05/07|                          | 5 wads of paper to each group at the fair |
| FAIR 2                   |          |           |        |                          |                         |
| Fresno County Fair       | 36° N    | 119° W    | 8/17/07|                          | 3 wads of paper of each color to each group at the fair |
| FAIR 3                   |          |           |        |                          |                         |
| San Bernardino County    | 35° N    | 116° W    | 8/25/07|                          | 1 wad of paper of each color to each group at the fair |
# GREEN Tracking Sheet

**Home:** San Louis Obispo

- **Color:** Green
- **Latitude:** 35° N
- **Longitude:** 121° W

## Round 1

| Name of the Fair | Latitude | Longitude | Date    | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|---------|--------------------------|-------------------------|
| FAIR 1: Fresno County Fair | 36° N | 119° W | 7/20/05 | | 1 wad of paper to each group at the fair |

## Round 2

| Name of the Fair | Latitude | Longitude | Date    | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|---------|--------------------------|-------------------------|
| FAIR 1 Santa Barbara County Fair and Exposition | 35° N | 120° W | 7/25/06 | | 3 wads of paper to each group at the fair |
| FAIR 2 Los Angeles County Fair | 34° N | 119° W | 8/02/06 | | 1 wad of paper of each color to each group at the fair |

## Round 3

| Name of the Fair | Latitude | Longitude | Date    | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|---------|--------------------------|-------------------------|
| FAIR 1 Santa Barbara County Fair and Exposition | 35° N | 120° W | 8/05/07 | | 5 wads of paper to each group at the fair |
| FAIR 2 Fresno County Fair | 36° N | 119° W | 8/17/07 | | 3 wads of paper of each color to each group at the fair |
| FAIR 3 San Bernardino County Fair | 35° N | 116° W | 8/25/07 | | 1 wad of paper of each color to each group at the fair |
ORANGE Tracking Sheet

**Home:** Monterey  
- **Color:** Orange  
- **Latitude:** 36° N  
- **Longitude:** 122° W

### Round 1

| Name of the Fair | Latitude | Longitude | Date       | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|------------|--------------------------|-------------------------|
| FAIR 1 Merced County Fair | 37° N   | 121° W   | 7/20/05    |                          | 1 wad of paper to each group at the fair |

### Round 2

| Name of the Fair | Latitude | Longitude | Date       | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|------------|--------------------------|-------------------------|
| FAIR 1 Santa Barbara County Fair and Exposition | 35° N   | 120° W   | 7/25/06    |                          | 3 wads of paper to each group at the fair |
| FAIR 2 Fresno County Fair | 36° N   | 119° W   | 8/02/06    |                          | 1 wad of paper of each color to each group at the fair |

### Round 3

| Name of the Fair | Latitude | Longitude | Date       | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|------------|--------------------------|-------------------------|
| FAIR 1 Merced County Fair | 37° N   | 121° W   | 8/05/07    |                          | 5 wads of paper to each group at the fair |
| FAIR 2 Fresno County Fair | 36° N   | 119° W   | 8/17/07    |                          | 3 wads of paper of each color to each group at the fair |
| FAIR 3 San Bernardino County Fair | 35° N   | 116° W   | 8/25/07    |                          | 1 wad of paper of each color to each group at the fair |
# PURPLE Tracking Sheet

**Home:** Sacramento  
- **Color:** Purple  
- **Latitude:** 39° N  
- **Longitude:** 121° W

## Round 1

| Name of the Fair       | Latitude | Longitude | Date     | Animals (colors) present | Wads of paper exchanged                           |
|------------------------|----------|-----------|----------|--------------------------|---------------------------------------------------|
| FAIR 1                 | 39° N    | 121° W    | 7/20/05  |                          | 1 wad of paper to each group at the fair           |
| Yuba-Sutter Fair       |          |           |          |                          |                                                   |

## Round 2

| Name of the Fair       | Latitude | Longitude | Date     | Animals (colors) present | Wads of paper exchanged                           |
|------------------------|----------|-----------|----------|--------------------------|---------------------------------------------------|
| FAIR 1                 | 39° N    | 121° W    | 7/20/05  |                          | 3 wads of paper to each group at the fair          |
| Yuba-Sutter Fair       |          |           |          |                          |                                                   |
| FAIR 2                 | 37° N    | 121° W    | 8/02/06  |                          | 1 wad of paper of each color to each group at the fair |
| Merced County Fair     |          |           |          |                          |                                                   |

## Round 3

| Name of the Fair       | Latitude | Longitude | Date     | Animals (colors) present | Wads of paper exchanged                           |
|------------------------|----------|-----------|----------|--------------------------|---------------------------------------------------|
| FAIR 1                 | 37° N    | 121° W    | 8/05/07  |                          | 5 wads of paper to each group at the fair          |
| Merced County Fair     |          |           |          |                          |                                                   |
| FAIR 2                 | 34° N    | 119° W    | 8/17/07  |                          | 3 wads of paper of each color to each group at the fair |
| Los Angeles County Fair|          |           |          |                          |                                                   |
| FAIR 3                 | 35° N    | 116° W    | 8/25/07  |                          | 1 wad of paper of each color to each group at the fair |
| San Bernardino County Fair|      |           |          |                          |                                                   |
### RED Tracking Sheet

**Home:** Santa Cruz  
- **Color:** Red  
- **Latitude:** 37° N  
- **Longitude:** 122° W

**Round 1**

| Name of the Fair                        | Latitude | Longitude | Date    | Animals (colors) present | Wads of paper exchanged |
|-----------------------------------------|----------|-----------|---------|--------------------------|-------------------------|
| FAIR 1                                  | 35° N    | 120° W    | 7/20/05 |                          | 1 wad of paper to each group at the fair |
| Santa Barbara County Fair and Exposition|          |           |         |                          |                         |

**Round 2**

| Name of the Fair                        | Latitude | Longitude | Date    | Animals (colors) present | Wads of paper exchanged |
|-----------------------------------------|----------|-----------|---------|--------------------------|-------------------------|
| FAIR 1                                  | 39° N    | 121° W    | 7/25/06 |                          | 3 wads of paper to each group at the fair |
| Yuba-Sutter Fair                        |          |           |         |                          |                         |
| FAIR 2                                  | 36° N    | 119° W    | 8/02/06 |                          | 1 wad of paper of each color to each group at the fair |
| Fresno County Fair                      |          |           |         |                          |                         |

**Round 3**

| Name of the Fair                        | Latitude | Longitude | Date    | Animals (colors) present | Wads of paper exchanged |
|-----------------------------------------|----------|-----------|---------|--------------------------|-------------------------|
| FAIR 1                                  | 35° N    | 120° W    | 8/05/07 |                          | 5 wads of paper to each group at the fair |
| Santa Barbara County Fair and Exposition|          |           |         |                          |                         |
| FAIR 2                                  |          |           | 8/17/07 |                          | 3 wads of paper of each color to each group at the fair |
| Stay Home                                |          |           |         |                          |                         |
| FAIR 3                                  | 39° N    | 121° W    | 8/25/07 |                          | 1 wad of paper of each color to each group at the fair |
| Yuba-Sutter Fair                        |          |           |         |                          |                         |
**VOLUNTEERS: BLUE Tracking Sheet KEY**

*Home:* San Diego
  - **Color:** Blue
  - **Latitude:** 33° N
  - **Longitude:** 117° W

### Round 1

| Name of the Fair | Latitude | Longitude | Date   | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|--------|--------------------------|-------------------------|
| FAIR 1           | 35° N    | 116° W   | 7/20/05| none                     | 1 wad of paper to each group at the fair |
| San Bernardino County Fair |          |           |        |                          |                         |

### Round 2

| Name of the Fair | Latitude | Longitude | Date   | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|--------|--------------------------|-------------------------|
| FAIR 1           | 35° N    | 116° W   | 7/25/06| none                     | 3 wads of paper to each group at the fair |
| San Bernardino County Fair |          |           |        |                          |                         |
| FAIR 2           | 34° N    | 119° W   | 8/02/06| green                    | 1 wad of paper of each color to each group at the fair |
| Los Angeles County Fair |          |           |        |                          |                         |

### Round 3

| Name of the Fair | Latitude | Longitude | Date   | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|--------|--------------------------|-------------------------|
| FAIR 1           | 37° N    | 121° W   | 8/05/07| purple, orange           | 5 wads of paper to each group at the fair |
| Merced County Fair |          |           |        |                          |                         |
| FAIR 2           | 36° N    | 119° W   | 8/17/07| green, orange            | 3 wads of paper of each color to each group at the fair |
| Fresno County Fair |          |           |        |                          |                         |
| FAIR 3           | 35° N    | 116° W   | 8/25/07| orange, purple, green    | 1 wad of paper of each color to each group at the fair |
| San Bernardino County Fair |          |           |        |                          |                         |
## VOLUNTEERS: GREEN Tracking Sheet KEY

**Home:** San Louis Obispo  
- **Color:** Green  
- **Latitude:** 35° N  
- **Longitude:** 121° W

### Round 1

| Name of the Fair | Latitude | Longitude | Date   | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|--------|--------------------------|-------------------------|
| FAIR 1 Fresno County Fair | 36° N    | 119° W    | 7/20/05 | none                     | 1 wad of paper to each group at the fair |

### Round 2

| Name of the Fair | Latitude | Longitude | Date   | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|--------|--------------------------|-------------------------|
| FAIR 1 Santa Barbara County Fair and Exposition | 35° N    | 120° W    | 7/25/06 | orange                   | 3 wads of paper to each group at the fair |
| FAIR 2 Los Angeles County Fair | 34° N    | 119° W    | 8/02/06 | blue                     | 1 wad of paper of each color to each group at the fair |

### Round 3

| Name of the Fair | Latitude | Longitude | Date   | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|--------|--------------------------|-------------------------|
| FAIR 1 Santa Barbara County Fair and Exposition | 35° N    | 120° W    | 8/05/07 | red                      | 5 wads of paper to each group at the fair |
| FAIR 2 Fresno County Fair | 36° N    | 119° W    | 8/17/07 | blue, orange             | 3 wads of paper of each color to each group at the fair |
| FAIR 3 San Bernardino County Fair | 35° N    | 116° W    | 8/25/07 | purple, orange, blue     | 1 wad of paper of each color to each group at the fair |
VOLUNTEERS: ORANGE Tracking Sheet KEY

**Home:** Monterey

- **Color:** Orange
- **Latitude:** 36° N
- **Longitude:** 122° W

**Round 1**

| Name of the Fair          | Latitude | Longitude | Date       | Animals (colors) present | Wads of paper exchanged |
|---------------------------|----------|-----------|------------|--------------------------|-------------------------|
| FAIR 1 Merced County Fair | 37° N    | 121° W    | 7/20/05    | none                     | 1 wad of paper to each group at the fair |

**Round 2**

| Name of the Fair                          | Latitude | Longitude | Date       | Animals (colors) present | Wads of paper exchanged |
|-------------------------------------------|----------|-----------|------------|--------------------------|-------------------------|
| FAIR 1 Santa Barbara County Fair and Exposition | 35° N    | 120° W    | 7/25/06    | green                    | 3 wads of paper to each group at the fair |
| FAIR 2 Fresno County Fair                 | 36° N    | 119° W    | 8/02/06    | red                      | 1 wad of paper of each color to each group at the fair |

**Round 3**

| Name of the Fair                      | Latitude | Longitude | Date       | Animals (colors) present | Wads of paper exchanged |
|---------------------------------------|----------|-----------|------------|--------------------------|-------------------------|
| FAIR 1 Merced County Fair             | 37° N    | 121° W    | 8/05/07    | purple, blue             | 5 wads of paper to each group at the fair |
| FAIR 2 Fresno County Fair             | 36° N    | 119° W    | 8/17/07    | green, blue              | 3 wads of paper of each color to each group at the fair |
| FAIR 3 San Bernardino County Fair     | 35° N    | 116° W    | 8/25/07    | blue, green, purple      | 1 wad of paper of each color to each group at the fair |
# VOLUNTEERS: PURPLE Tracking Sheet KEY

*Home:* Sacramento  
  - *Color:* Purple  
  - *Latitude:* 39° N  
  - *Longitude:* 121° W

## Round 1

| Name of the Fair  | Latitude | Longitude | Date   | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|--------|--------------------------|-------------------------|
| FAIR 1 Yuba-Sutter Fair | 39° N    | 121° W    | 7/20/05 | none                     | 1 wad of paper to each group at the fair |

## Round 2

| Name of the Fair | Latitude | Longitude | Date   | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|--------|--------------------------|-------------------------|
| FAIR 1 Yuba-Sutter Fair | 39° N    | 121° W    | 7/20/05 | red                      | 3 wads of paper to each group at the fair |
| FAIR 2 Merced County Fair | 37° N    | 121° W    | 8/02/06 | none                     | 1 wad of paper of each color to each group at the fair |

## Round 3

| Name of the Fair | Latitude | Longitude | Date   | Animals (colors) present | Wads of paper exchanged |
|------------------|----------|-----------|--------|--------------------------|-------------------------|
| FAIR 1 Merced County Fair | 37° N    | 121° W    | 8/05/07 | orange, blue              | 5 wads of paper to each group at the fair |
| FAIR 2 Los Angeles County Fair | 34° N    | 119° W    | 8/17/07 | none                     | 3 wads of paper of each color to each group at the fair |
| FAIR 3 San Bernardino County Fair | 35° N    | 116° W    | 8/25/07 | blue, green, orange      | 1 wad of paper of each color to each group at the fair |
### VOLUNTEERS: RED Tracking Sheet KEY

**Home:** Santa Cruz
- Color: Red
- Latitude: 37° N
- Longitude: 122° W

**Round 1**

| Name of the Fair         | Latitude | Longitude | Date     | Animals (colors) present | Wads of paper exchanged |
|--------------------------|----------|-----------|----------|--------------------------|-------------------------|
| FAIR 1                   | 35° N    | 120° W    | 7/20/05  | none                     | 1 wad of paper to each group at the fair |
| Santa Barbara County Fair and Exposition |

**Round 2**

| Name of the Fair         | Latitude | Longitude | Date     | Animals (colors) present | Wads of paper exchanged |
|--------------------------|----------|-----------|----------|--------------------------|-------------------------|
| FAIR 1                   | 39° N    | 121° W    | 7/25/06  | purple                   | 3 wads of paper to each group at the fair |
| Yuba-Sutter Fair         |
| FAIR 2                   | 36° N    | 119° W    | 8/02/06  | orange                   | 1 wad of paper of each color to each group at the fair |
| Fresno County Fair       |

**Round 3**

| Name of the Fair         | Latitude | Longitude | Date     | Animals (colors) present | Wads of paper exchanged |
|--------------------------|----------|-----------|----------|--------------------------|-------------------------|
| FAIR 1                   | 35° N    | 120° W    | 8/05/07  | green                    | 5 wads of paper to each group at the fair |
| Santa Barbara County Fair and Exposition |
| FAIR 2                   |          |           | 8/17/07  |                          | 3 wads of paper of each color to each group at the fair |
| Stay Homer               |
| FAIR 3                   | 39° N    | 121° W    | 8/25/07  | none                     | 1 wad of paper of each color to each group at the fair |
| Yuba-Sutter Fair         |
Animal Contact Record Sheet

Animal: __________________________________________________

Location of potential contacts (check all that apply):

- Home ________________________________________________  Fair: ________________________________________________
- Show: ________________________________________________  Exhibition: __________________________________________
- Direct contact with other animals?  _ Yes  _ No

If yes, contact during:

- Transportation
  Animal species
  a. __________________________________________  Number of animals
  b. __________________________________________
  c. __________________________________________
  d. __________________________________________

If yes, contact during:

- Housing
  Animal species
  a. __________________________________________  Number of animals
  b. __________________________________________
  c. __________________________________________
  d. __________________________________________

If yes, contact during:

- Competition
  Animal species
  a. __________________________________________  Number of animals
  b. __________________________________________
  c. __________________________________________
  d. __________________________________________

If yes, contact during:

- Other (please indicate) ____________________________
  Animal species
  a. __________________________________________  Number of animals
  b. __________________________________________
  c. __________________________________________
  d. __________________________________________

- Indirect contact with other animals:  _ Yes  _ No

If yes, check all that apply:

- Non-owner human contact
- Troughs/containers
- Food
- Wash rack
- Show arena or exercise area
- Other (please specify) ____________________________

- Shared food and water
- Clothing
- Tools/equipment
- Vehicles
- Barn or holding pen
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