SCIENCE IN ACTION!
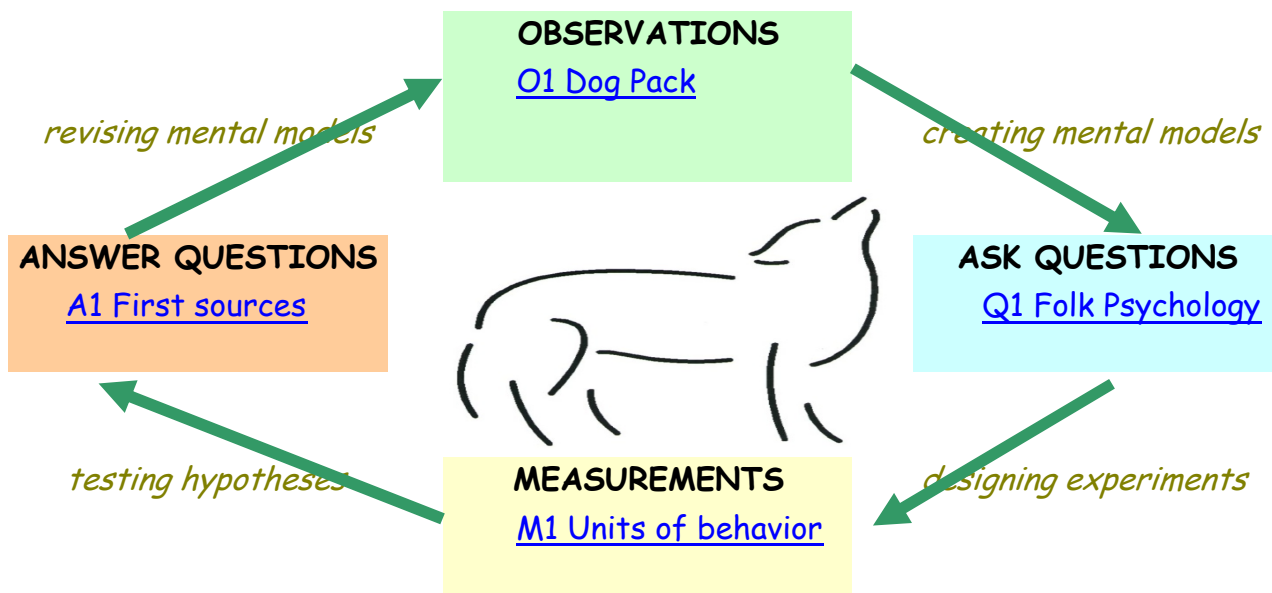*Nature's Partners: predators, prey & you*

Wolf Inquiry Activity

Module 1. Dogs & People Partnerships

OBSERVATIONS
O1 Dog Pack

revising mental models

creating mental models

ANSWER QUESTIONS
A1 First sources

ASK QUESTIONS
Q1 Folk Psychology

testing hypotheses

designing experiments

MEASUREMENTS
M1 Units of behavior

GENERAL LEARNING GOAL: Experience the nature of scientific inquiry

SPECIFIC OBJECTIVES FOR MODULE 1

1.1 Distinguish between observation (fact) and inference (interpretation) when folk psychology influences our understanding of dog behavior.

1.2 Identify how the body language of dogs and people may differ in form (structure) and be similar in the type of consequences (function).

1.3 Discover how to use detective work (critical thinking) to sift through the evidence from biased sources and personal experiences to move beyond folk psychology to testable hypotheses about behavior systems.

Name:
Date(s):
Time to complete this page (minutes)

O1 Dog pack- observations

STEP 1 Choose two video clips about dogs, which show body language related to sharing space. When you make your choice, consider whether you have sufficient information about the social structure of the wolf family in each video. In the column "VIDEO". Write the source information for each video in a separate box (bright green)**SAVE**. *OPTIONS: View clips 1 & 2 provided. Ask your teacher for a CD or the weblink (password protected for copyright reasons), check out a video from the library (use the link to the background resources on the predator Module website), or use your own camcorder to record your own video (pet at home, a friend's pet, or at a dog park).*

STEP 2 Observe the first video clip and write general notes on what happened in the box provided (white). Focus on the body language that influences social distance among each member of the group. Repeat for the second video clip. **SAVE**.

STEP 3 Evaluate your notes from Step 2, to distinguish among observation (fact), inference (interpretation) and questions (see box below). Annotate your notes: underline observations; place quotes around inferences; and insert question marks**SAVE**. *OPTION: do the group activity [inference and observation] linked to the webpage for Module 1: http://wfsc.tamu.edu/scienceinaction/pred_mod1.html*

VIDEO	GENERAL NOTES ON WHAT HAPPENED
	Type your notes here!

CODE	CATEGORY	DEFINITION	EXAMPLE
?	**Question**	what I'm curious to learn more about, to better understand what I observed; my hypothesis about cause/effect	I wonder if the dog at the front of the pack is a female in heat?
under-line	**Observation** (direct evidence)	"fact"; what I actually saw, heard, smelled, or otherwise sensed about the animal and its environment	I saw individual dogs from separate yards jumped over fences and joined the group of dogs roaming the neighborhood
"quotes"	**Inference** (indirect evidence)	"fancy"; what I (or others) think about what I observed; my interpretation or underlying mental model	"I think many dog packs are made up of males that are attracted to a female in heat"

Name:

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Q1 Questions: Folk Psychology or Systems?

STEP 1 Discuss what the words "Folk Psychology" mean to you, and how we sometimes talk as if dogs think and feel like ourselves. Type your ideas in answer to questions #1 & #2. SAVE. *OPTION: To find what teachers and scientists think about these words, go to the Predator Module 1 webpage and read the links to [concept map]. Note these are good sources to use in other activities. http://wfsc.tamu.edu/jpackard/scienceinaction/pred_mod1.html.*

STEP 2 Think of some groups of which you are a member, for example: family, church, team, club, class. Discuss how people get along in these groups. Answer questions #3 and #4. SAVE. *OPTION: Draw boxes on a chart to illustrate how people are close or far apart in one group. Draw thick arrows between people who talk frequently and thin arrows between people who don't talk much. Discuss how this is a system diagram (boxes & arrows).*

STEP 3 Think of a group of dogs that you have watched. Discuss how the dogs get along in their group. Answer questions #5 & #6. SAVE. *OPTION: Draw a chart to illustrate how the dogs interact, learning from what you did for people in STEP 2.*

Question 1: What is Folk Psychology? How do we use it to think of hypotheses about behavior?

My answer:

Question 2: Do dogs really think and feel like humans?

My answer:

Question 3: What are some social groups to which you belong?

My answer:

Question 4: What are similarities and differences in the structure of your social groups? *(TIP: use a systems perspective; see box and arrow diagrams)*

My answer:

Question 5: What are some groups of dogs that you have watched?

My answer:

Question 6: Compare and contrast the structure of dog groups you have watched?

My answer:

INQUIRY:	What is the social structure of a dog pack?	
Alternative Hypotheses	My Hypothesis	Evidence I would need to measure in order to test my hypothesis
Example	I hypothesize the structure of a dog pack is not like the "ladder model", instead, all individuals are equal.	If I counted the number of friendly and unfriendly actions, and all the dogs were equal, then I would accept my hypothesis.
My First Hypothesis		
My Second Hypothesis		
My Third Hypothesis		

EXAMPLES OF SYSTEMS CHARTS: GROUPS OF PEOPLE
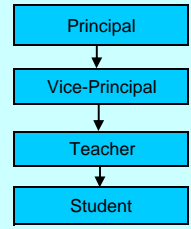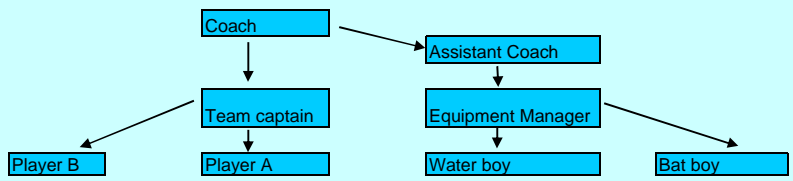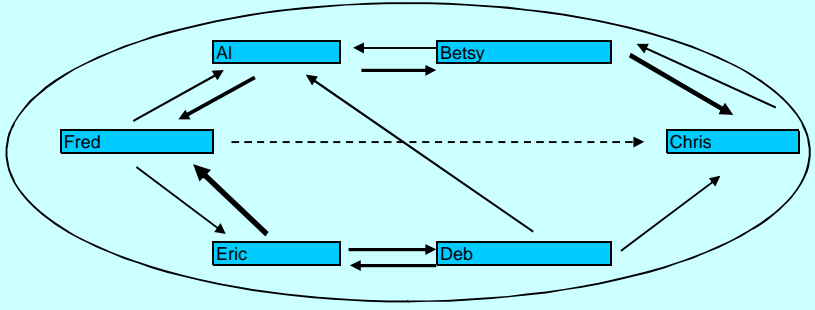
GROUPS OF DOGS

CHART A: "LADDER MODEL"

Principal → Vice-Principal → Teacher → Student

CHART A: "LADDER MODEL"

Alpha → Beta → Gamma → Omega

CHART B: "BRANCHED MODEL"

Coach → Assistant Coach

Team captain — Equipment Manager

Player B — Player A — Water boy — Bat boy

CHART B: "BRANCHED MODEL"

Alpha male → Alpha female

Beta male — Beta female

Male pup2 — Male pup1 — Female pup1 — Female pup2

CHART C: "CIRCLE MODEL"

Al — Betsy
Fred — Chris
Eric — Deb

CHART C: "CIRCLE MODEL"

Alpha male — Alpha female
Beta male — Beta female
Gamma male — Gamma female
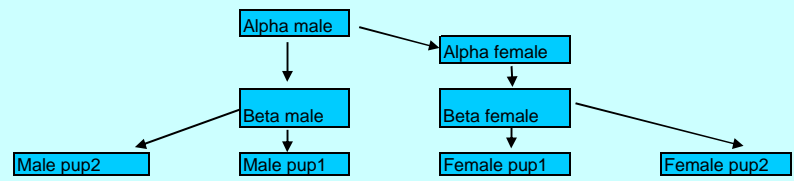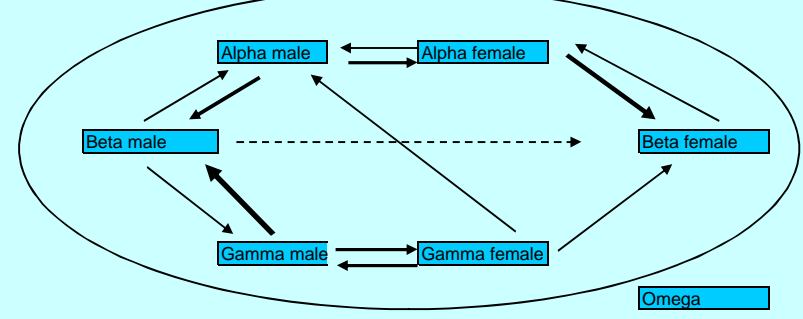Omega
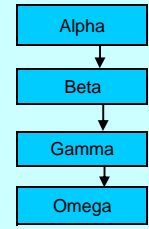
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Date(s):

Time to complete this page (minutes):

M1 Body Language: Units of behavior

STEP 1 Discuss "friendly and unfriendly" types of behavior in groups of people and dogs; write your own ideas in the 2 orange boxes for these categoris, below (revise, don't plagiarize!). **SAVE**.

STEP 2 Discuss "dominant and submissive" behavior in people and dogs, then write examples of actions you believe would fit in each category (use the bottom 4 boxes). **SAVE**.

STEP 3 Observe behavior of people & dogs. Add to your lists in each of the 8 boxes. Discuss. **SAVE**.
OPTIONS: (1) improvise a skit, (2) invite a guest dog, (3) view clips 3-8 provided by your instructor, (4) find videos on the internet, (5) take your own videos at home or a dog park.

Type of behavior (function)	My ideas about examples of body language (form) for each type of behavior in:	
	PEOPLE	DOGS
Friendly		
Unfriendly		
Dominant		
Submissive		

TYPE	MEANING	EXAMPLE
Friendly	Actions that bring individuals closer together	smile, laughter, gentle touch, backslap
Unfriendly	Actions that make individuals more distant	frown, yelling, hit, slap in face, shaking the fist
Dominant	Assertive actions that control the access of others to something they might want (resources).	cutting in line, taking another's food, sitting in another's chair
Submissive	Appeasing actions that reduce the probability of conflict.	hunched shoulders, turning away, sad face, closing the eyes, looking down.
Revise	State the idea succinctly in words that you will remember, and are slightly different than your source.	Reducing distance is a criteria for identifying the "friendly" category.
Plagiarize	Copying words that are not your own; passing off someone else's ideas as your own (intentional or unintentional)	Cut and paste from one box to another, or one page to another without using quotation marks or citing the source; copy from the whiteboard.

Name:
Date(s):
Time to complete this page (minutes):

A1 First sources- paraphrase & synthesize

STEP 1   Think and discuss how our interpretation of dog behavior changes as we learn more about how our own experiences relate to those of others. Relate this to the nature of scientific discovery and hypothesis testing. *OPTION: View the presentation [Man Meets Wolf] linked to the Predator Module 1 webpage. Discuss.*

STEP 2   Choose a source of information about dog behavior. Read it and answer Questions #1 -4. *OPTION: do one page from the Jigsaw Handout provided (Predator Module 1; http:wfsc.tamu.edu/jpackard/scienceinaction/jigsaw.pdf) or go to Background Info.*

STEP 3   Find another source by the same author. Read it and aswer Questions #5-6. *OPTION: As a jigsaw activity, find other students with handout pages from the same author. Discuss their pages and compare it with yours before writing your synthesis.*

STEP 4   Practice critical thinking skills by synthesizing the information from several sources, taking into account the credibility of those sources in terms of Folk Psychology. Read your second source and answer Questions #7-10. *OPTION: Continuing the jigsaw activity, return to your group and dialogue with a partner who has a handout by a different author. Consider all the information you learned from the readings and other students.Edit out the folk psychology and write in an objective style.*

Question 1:   **What is your source of information about dog behavior?**

My source:

Question 2:   **In your own words, paraphrase information about dog behavior in this source?**

My source said:

Question 3:   **Which quotes were direct observation (factual evidence) in your source?**

Observations:

Question 4:   **Which quotes were indirect inference (bias or Folk Psychology) in your source?**

Inference:

Question 5:   **What other source(s) did you find by the same author?**

sources

Question 6:	**What is your synthesis of several sources of information by this one author?**
synthesis:	

Question 7:	**Which source by a different author did you choose?**
synthesis:	

Question 8:	**What is your synthesis of information on the body language of dogs based on the factual evidence from the two authors you chose?**
synthesis:	

Question 9:	**How do these authors compare in terms of Folk Psychology?**			
		More	**Not much**	**Less**
	After comparing these sources, this is where I would rank them on a scale of more to less Folk Psychology:			

Question 10:	**Based on your observations and readings, is a "bully" dog born dominant... or does dominance behavior of individuals change with age and behavior of other members of the group?**

CONCEPT	DEFINITION	EXAMPLE
paraphrase	Describe a lengthy piece of writing in a few concise statements using your own words that communicate the general idea without using the exact words of the author (avoid plagiarism).	Reduce the jargon and keep it simple
synthesize	Integrate information from several sources to reach a deeper understanding about how to answer the research question by considering diverse perspectives of authors with different experiences.	Although Tinbergen described sled dogs as having a linear dominance hierarchy, Lorenz went back to the original work by Darwin and explained how the hierarchy can also be viewed in terms of the learned relationships between individuals, which may change over time.

EVALUATION (optional to earn participation points)

What worked?

What didn't work?

Sugges-tions?