

“Independence through Projects”



Objectives

1. Identify resources to share with 4-H Club members.
2. Describe key components of the Science, Engineering, & Technology (SET) National 4-H Mission Mandate.
3. Identify age-appropriate activities related to SET.
4. Define additional terms related to SET.
5. Explore the Experiential Learning Model.



Objective 1

Identify resources to share with
4-H Club members.



Activity Lessons

- **2a: Bike Safety and Rules – 4-H Bicycle Project (Level 1)**
 - Learn appropriate hand signals to use when bicycling
 - Learn other bicycle safety rules
- **2b: Make Your Own Play Dough – 4-H Child Development Project (Level B)**
 - Use play dough to help young children develop eye/hand coordination
 - Observe children's reactions when they play.
 - Use homemade play dough recipe



Activity Lessons

- **2c: Foam Test** – 4-H Consumer Clothing (Intermediate)
 - Identify active ingredients in shampoos and toothpastes
 - Identify most economical products
- **2d: Dots Before My Eyes** – 4-H Entomology (Level 2)
 - Learn how insects use bright colors and camouflage to survive



Activity Lessons

- **2e: Make a Volcano** – 4-H Geology (Level 1)
 - Learn how volcanoes erupt and form rocks
 - Create a mini volcanic eruption

- **2f: How to Build a Rain Gauge** – 4-H Weather (Level 1)
 - Identify parts of weather
 - Describe the importance of water
 - Learn how to measure rain
 - Learn how to build a basic rain gauge



Activity Lessons

- **2g: Texture Feely Bags** – 4-H Soil & Water Conservation (Level A)
 - Identify products by touch
 - Identify texture of the three basic soil types
- **2h: My Personality** – 4-H Personality (Level A)
 - Identify characteristics that make personality special and unique
 - Identify responsibilities at home and in the community
 - Learn to complete a basic personality project poster



Objective 2

Describe key components of the
Science, Engineering, &
Technology (SET) National 4-H
Mission Mandate.





One Million New Scientists. One Million New Ideas.™



Components of SET

- 4-H is directly connected to land grant research.
- 5% of U.S. graduates are in SET compared to 66% in Japan and 59% in China.
- 4-H has engaged youth in SET areas for over 100 years.



Components of SET

- 4-H SET reaches over 5 million youth with hands-on learning.
- Youth are supported by over 500,000 dedicated adult volunteers.
- 4-H SET is part of long-term solution to improve the science literacy and aptitude of America's youth.



Components of SET

- Goal: prepare 1 million new youth to excel in SET by 2013.
- Encouraging this passion in science today will lead members to science-related education and career decisions tomorrow.



Objective 3

Identify age-appropriate activities
related to SET.



Grades K-4

- Ask a question about objects, organisms, and events in the environment.
- Plan and conduct a simple investigation.
- Use data to construct a reasonable explanation.



Grades 5-8

- Identify questions that can be answered through scientific investigation.
- Design and conduct a scientific investigation.
- Think critically and logically to find the relationships between evidence and explanations.



Grades 9-12

- Identify questions or concepts that can be answered through scientific investigation.
- Design and conduct scientific investigations.
- Formulate and revise scientific explanations and models using logic and evidence.



Objective 4

Define additional terms related to
SET.



SET

Science, Engineering, and
Technology
(National 4-H Council)



STEM

Science, Technology, Engineering, and
Mathematics

(National Science Foundation and
National Science Teachers Association)



STEAM

Science, Technology, Engineering,
Agriculture, and Mathematics

(Department of Youth Development and
Agricultural Education, Purdue University)

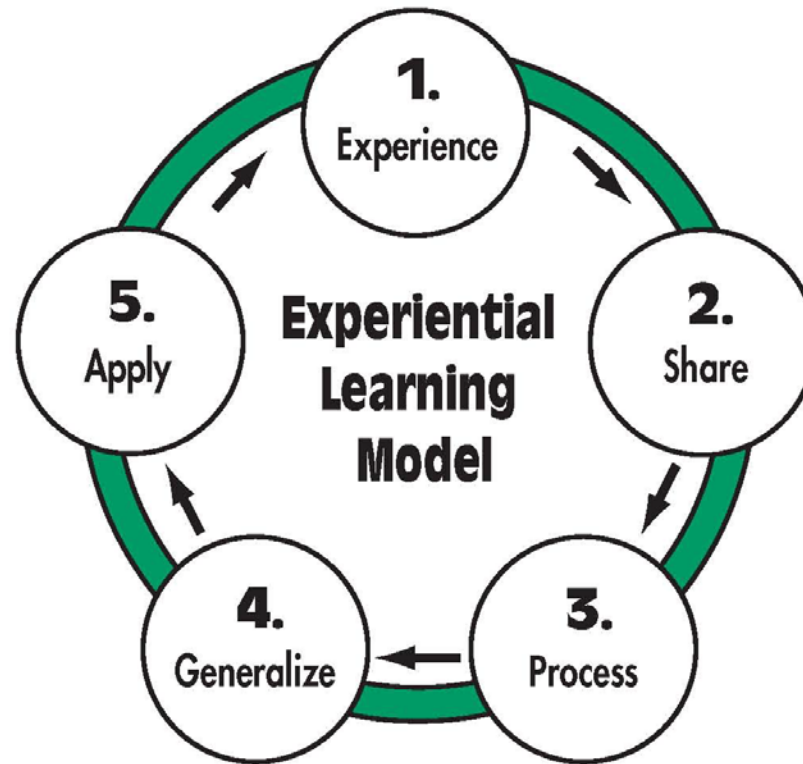


Objective 5

Explore the Experiential Learning Model.



Experiential Learning Model



Pfeiffer, J.W., & Jones, J.E., "Reference Guide to Handbooks and Annuals"
© 1983 John Wiley & Sons, Inc.
Reprinted with permission of John Wiley & Sons, Inc.



Steps of Experiential Learning Model

1. Experience the activity. Characteristics include:
 - Provide a concrete experience.
 - Complete the activity individually or as a group.
 - Accept that the activity may be unfamiliar and uncomfortable to learner.
 - Push learning beyond previous performance levels.
 - Accept the risk of failure.



Steps of Experiential Learning Model

2. Share reactions and observations.
 - Get participants to talk about the experience.
 - Share reactions and observations.
 - Discuss feelings generated by the experience.
 - Let the group (or individual) talk freely and acknowledge ideas generated.



Steps of Experiential Learning Model

3. Process by analyzing and reflecting upon experience.

- How was experience completed?
- How did themes, problems, and issues emerge?
- How were specific problems or issues addressed?
- What were the members' experiences?
- Were there recurring themes?



Steps of Experiential Learning Model

4. Generalize what was learned and connect it to real life.
 - Find general trends or common truths in the experience.
 - Identify “real life” principles that surfaced.
 - Identify key items that were learned.
 - List key terms that capture the learning.



Steps of Experiential Learning Model

5. Apply what was learned to other situations.

- How can new learning can be applied to other situations?
- What issues raised can be useful in the future?
- How can more effective behaviors be developed from new learning?
- How can each individual feel a sense of ownership for what is learned?

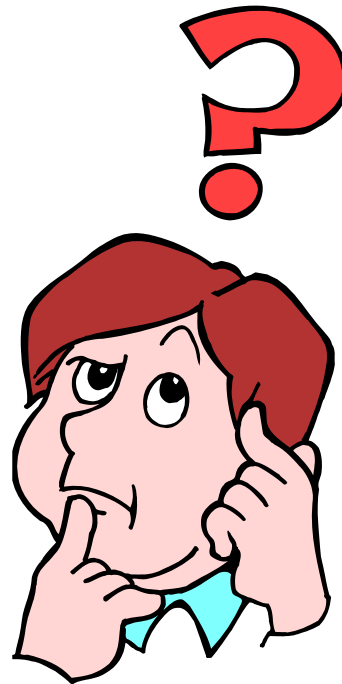


Group Discussion

- Why is it important to provide 4-H members with opportunities to expand their abilities in SET?
- How can we incorporate SET into existing 4-H programs and activities?
- How do we currently include components of the Experiential Learning Model in the 4-H experience?
- How could we enhance experiential learning in the future?



Conclusion & Quiz



Sources

- Carrell, Tony. (2008). *Experiential Learning Model*. Presented at 4-H Youth Development Master Volunteer Training. West Lafayette, IN.
- National 4-H Council. *Mission Mandates*. Retrieved December 12, 2008, from <http://www.fourhcouncil.edu/missionmandates.aspx>



Sources

- Pfeiffer, J.W., & Jones, J.E. (1983). *Reference Guide to Handbooks and Annuals*. John Wiley & Sons, Inc.
- Silliman, B. (2007). *Critical Indicators of Youth Development Outcomes for 4-H National Mission Mandates*. North Carolina State University.

