4-H Science Logic Model

Situation

Inputs

Activities

Outputs

Outcomes

Actions

Description of challenge, problem, or opportunity:

- Unsolved worldwide social problems need to be addressed by science
- -In the US, shortage of scientists & people understanding science
- -- Underrepresentation of women and minorities in science careers
- -Need a diverse pool of trained scientists to frame and solve problems & educate others.
- -General population in the US (& worldwide) lacks basic understanding of science methods and content ("science literacy")

What we invest:

- Federal state and private funds
- 4-H Infrastructure
- -Land Grant Univ. Support
- County Extension administrators and agents, program coordinators, and specialists
- Training
- -Knowledge
- Collaborations with external researchers
- -Collaborations with science industry leaders

What we do::

- -Select and develop 4-H Science curricula
- -Select and train volunteers
- Market 4-H Science to increase interest, participation
- Conduct non-formal education (learning and teaching, facilitated inquiry and discovery)
- Facilitate question formation and problem solving through guided activities
- -Provide or supplement math programming
- -Teach youth about academic and career choices, requirement

Who we reach (Participation):

- Extension administrators. LGU and Extension faculty and staff)
- Youth (grades 3-5, 6-8, 9-12)
- Federal, state & private
- Partners - Public

- funders

What we produce:

- 4-H Science curricula
- New instructional methods
- Trained staff and volunteers
- Adult participants engaged
- Youth participants engaged
- Partners (Other Federal agencies, science museums, youth organizations, etc.) collaborating
- Marketing materials
- Evaluation materials

Occurs when there is a change in knowledge or the

Knowledge

participants learn: Increased engagement in science among youth

-Improved attitudes toward science among vouth

Increased awareness of science among youth

-Improved science skills (scientific methods) and knowledge (content areas) among youth

-Increased awareness of opportunities to contribute to society using science skills.

Increased life skills

Occur when there is a change in behavior or the participants act upon what they've learned and:

-Youth apply science learning to contexts outside 4-H (e.g., school classes, science fairs. invention contests.

-Youth adopt and use new methods or improved technology

etc.)

- -- Youth demonstrate use of life skills
- Youth express interest/demonstrate aspirations towards science careers (career fairs, job shadowing, volunteer work or internships)
- --Youth raise questions and identify problems to be addressed using science

Occur when a societal condition is improved due to a participant's action taken in the previous column.

Conditions

- Increased number and more diverse pool of youth pursuing education and careers in science related fields.
- Increased and more diverse pool of trained teachers, educators, scientists
- -Increased science literacy in general population
- Increased innovation addressing social problems using science

ASSUMPTIONS - 4-H non-formal experientially based programming addresses science abilities, concepts and content under guidance of trained (scientifically able) 4-H learning facilitator; 4-H develops appropriate science abilities to emphasize in non-formal education; 4-H essential elements create optimal youth development context for learning; 4-H reaches diverse population; and increased awareness of science skills, content, and career possibilities increases engagement of youth in science careers.

EXTERNAL FACTORS - Youth experience in schools including [with] science & mathematics, No Child Left Behind (course content, testing, tutoring provided in school), changing landscape of schools, community and family influence (e.g., religious teaching on Creationism), population changes, immigration, global economy and competition in science education and science pursuits.