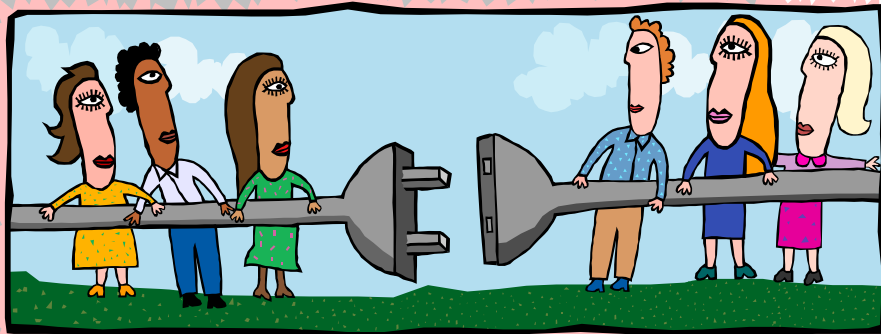
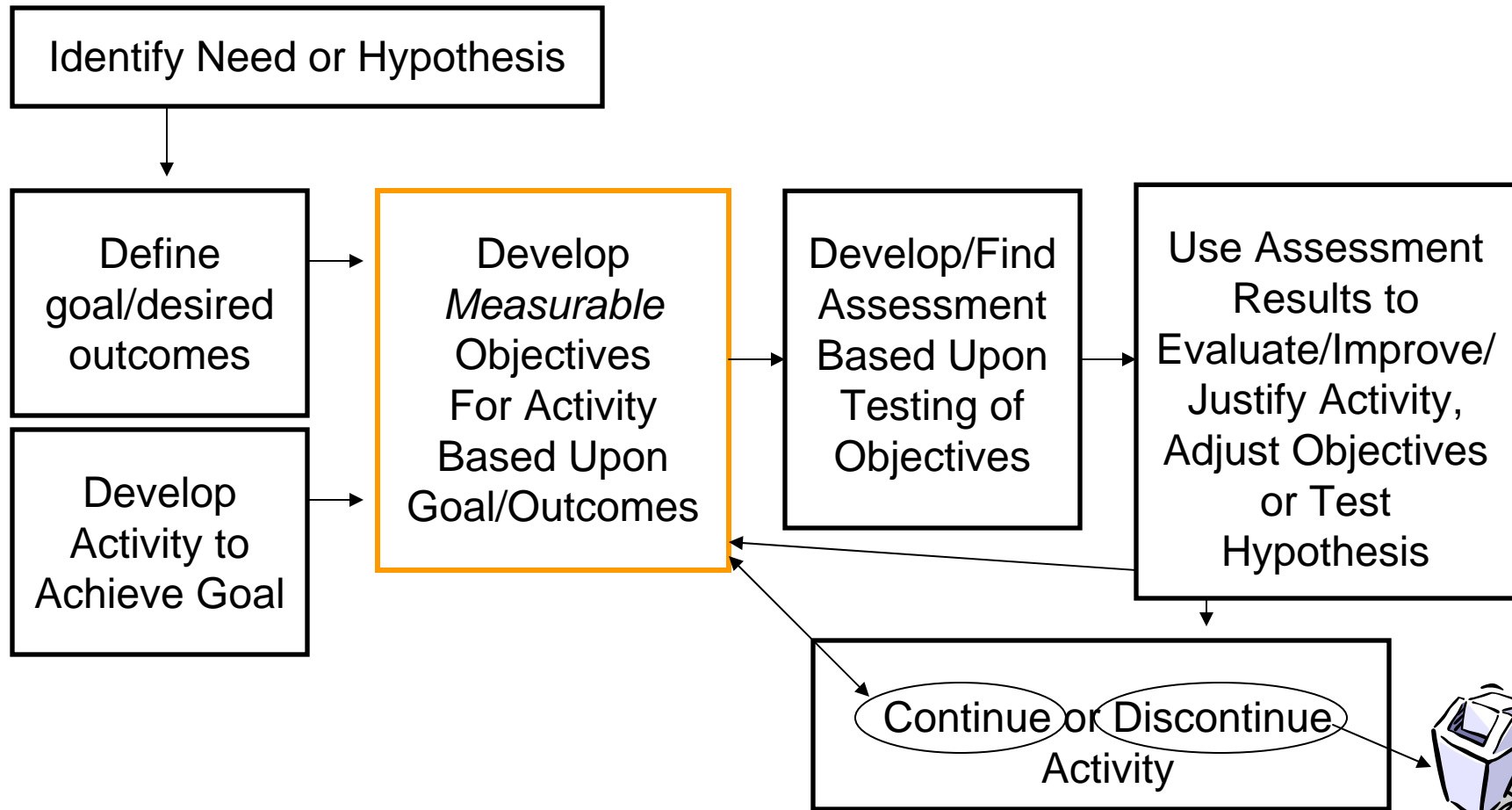


Developing Measurable Objectives

Key Component of
Good Assessment



Assessment-based Program/Activity Development



First Step to Effective Objectives

- Identify **problem** that needs to be solved (Goal*)
 - Girls attend outreach activities but do not enter engineering
 - Reference resources:
 - Experience
 - Prior assessment results
 - Literature
- Identify **goal** that supports mission and strategic vision of your institution and program
 - Create camp that effectively recruits girls to enroll in engineering
 - Helps keep focus
 - Integrates programming
- Develop **objectives**

***Goals must support missions!**

Objectives should ...

- Be specific.
 - Address the target audience.
 - Define a specific change we want in our participants.
- Support overall program goals/mission.
 - Recruiting and retaining ...
 - But objectives take these broad goals and “operationalize” them.
- Be measurable.



Objectives Specify What You Want to Happen. . .

as a result of individuals participating in your activity!

- Identify Problem: Pre-College kids don't know what engineers do!
- Create Specific Objective:
 - After participating in the High School Engineering Camp, participants will be able to identify different engineering careers and engineering majors **as measured by:** results on immediate and post-surveys

Note: Remember that to measure an outcome, surveys must have questions directly relating to this objective.

Sometimes our objectives ..

- Are really statements of participant or project personnel activities.

Students will read about engineering applications and discuss connections to the world around them.



Sometimes our objectives ..

- Are so broad that they are more of a goal statement than an objective about how participants will be changed.

Create a successful program that can be duplicated in other communities and leverage our project's funding in future programs.

Often our objectives ..

- Are on the right track but aren't specific enough to be measurable.

Build awareness of different types of science careers ...

or

To make science understandable ..

Why Do Objectives Matter?

- Helps to identify what we want to know before we design/implement activity.
- Maintain focus on desired outcomes during implementation.
- Focus activity planning on the participant
- Focus the assessment
- Allow us to know if we achieved what we set out to achieve





Writing Objectives: Specifying Results You Want

- Recruitment Camp Example Objectives
 - Promote interest in engineering for girls who had not expressed / shown this interest
 - As measured by pre- and post- survey responses
 - Recruit girls to engineering at Penn State
 - As measured by survey and admissions data
 - Retain upper-level engineering student women
 - As measured by survey and tracking for retention



Examples of Objectives

- For Activities Designed to Change Attitudes (Pre-College camps, classes, etc.)
 - After attending a summer engineering camp, participants will respond that engineering is a good choice as a major.
- Improvements?
 - After attending a summer engineering camp, participants will indicate a positive change in their opinion of girls studying engineering based upon answers to a pre- post- survey.

Examples of Objectives

- For Activities Designed to Inform (Open House, Major Night, etc)
 - Participants will have an increased awareness of science as major after attending open house.
 - Improvements?
 - Participants will demonstrate greater understanding of science as major based upon answers to a pre- post- survey.
 - Listing of majors, careers, industries, etc.
 - Choose activities scientists engage in.



Examples of Objectives

- **For Activities Designed to Change Behavior (Workshops, camps, classes, etc.)**
 - After camp participation, participants will say they know it is important to study math.
- **Improvements?**
 - After camp participation, participants will enroll in higher level math courses.



Note: Challenge with this objective is that it requires following up and gathering information on which classes they take after participation.