
KEY CHARACTERISTIC #3 EMPHASIS ON SKILLS BUILDING



Environmental education materials should build lifelong skills that enable learners to address environmental issues.

3.1) Critical and creative thinking. Learners should be challenged to use and improve their critical thinking and creative skills.

What to look for:

- Materials offer learners opportunities to practice critical thinking processes such as problem definition, forming hypotheses, collecting and organizing information, analyzing information, synthesizing, drawing conclusions, formulating possible solutions, and identifying opportunities for action.
- Materials provide learners with opportunities to practice creative thinking processes such as modeling, using metaphors and analogies, and formulating questions.
- Learners are challenged to use higher level thinking processes such as identifying bias, inferring, relating, applying, and reflecting.
- Materials provide guidance for judging the validity of various sources of information, and learners are encouraged to apply these guidelines.
- Learners are given opportunities to practice skills individually and in groups.

3.2) Applying skills to issues. Students should learn to arrive at their own conclusions about what needs to be done based on thorough research and study, rather than being taught that a certain course of action is best.

What to look for:

- Materials help students learn to identify, define, and evaluate issues on the basis of evidence and different perspectives. Ethical and value considerations are included.
- Materials provide a list of organizations and other resources that learners can use to explore the issue on their own, as appropriate for their developmental level. This list should include groups and resources with various perspectives.
- There are opportunities to use different methods of evaluating environmental issues and their potential solutions, as appropriate for the intended age level. These methods may include risk analysis, cost/benefit analysis, ethical analysis, environmental impact analysis, analysis of cumulative effects, different kinds of economic analyses, social impact analysis, etc.
- Materials help learners understand the strengths, weaknesses, and biases of these different means of evaluating an issue.
- Learners develop their own solutions to issues.
- Environmental issues are presented with a range of possible solutions as well as information about how the problems are currently being addressed. Materials compel learners to consider the implications of different approaches.

3.3) Action skills. Learners should gain basic skills needed to participate in resolving environmental issues.

What to look for:

- Materials give learners an opportunity to learn basic skills for addressing environmental issues, as appropriate for the intended age level. These skills may include defining an issue, determining if action is warranted, identifying others involved in the issue, selecting appropriate action strategies and understanding their likely consequences, creating an action plan, evaluating an action plan, implementing an action plan, and evaluating results.
- Learners hone their ability to forecast and to plan for the long term.
- Learners practice interpersonal and communication skills, including oral and written communication, group cooperation, leadership, conflict resolution, and others.
- Learners are provided with opportunities to develop a variety of citizenship skills, including participation in the political or regulatory process, consumer action, using the media, and community service.
- Materials and activities help students sharpen basic laboratory and field skills such as experimental design, observation, data collection, and data analysis.

- Materials facilitate student learning of basic skills of applied science, including environmental monitoring, evaluating others' research, and setting up an independent research proposal.

- Learners use various forms of technology that help them develop and apply their skills. These technologies might include computers and electronic communication networks, data gathering equipment, video equipment, etc.



Example: 3.3

Investigating and Evaluating Environmental Issues and Actions: Skill Development Modules

This program offers learners opportunities to learn basic skills for addressing environmental issues and to develop a variety of citizenship skills.

Program Description

This program consists of a series of six illustrated modules. These modules are designed to provide training in both the investigation and action skills needed by a responsible citizen. The program is highly interdisciplinary and introduces students to environmental issues, the skills needed to investigate and evaluate issues, the skills needed for information processing, and those skills used by responsible citizens in applying environmental action strategies.

Key Activities

Chapter I: Environmental Problem Solving.

- Students explore the impact of beliefs and values on environmental issues.
- Students critically analyze environmental issues.

Chapter II: Getting Started on Issue Investigation.

- Students identify environmental issues.
- Students learn how to write research questions.
- Students learn how to gain information from secondary sources.
- Students compare and evaluate information sources.

Chapter III: Using Surveys, Questionnaires, and Opinionnaires in Environmental Investigations.

- Students learn how to draw samples from human populations.
- Students learn how to gain information using primary sources.
- Students collect and record data using model surveys, questionnaires, and/or opinionnaires.

Chapter IV: Interpreting Data from Investigations.

- Students learn how to draw conclusions, make inferences, and formulate recommendations.
- Students learn how to communicate data using a number of strategies including graphs.

Chapter V: Investigating an Environmental Issue.

- Students select and investigate environmental issues.

Chapter VI: Environmental Action Strategies.

- Students learn six methods of citizenship action.
- Students analyze the effectiveness of individual versus group action.
- Students evaluate the action decisions of others.
- Students develop and evaluate action plans of their own.

Hungerford, H., Litherland, R., Peyton, R.B., Ramsey, J. & Volk, T. *Investigating and Evaluating Environmental Issues and Actions: Skill Development Modules*. Champaign, IL: Stipes Publishing Company, 1996.