Decision-Making Frameworks

The strength of Decision-Making Frameworks or Models is that they provide a structured format for student thought. In teaching frameworks to students, teachers have found it helpful to begin with a familiar example or have students consider how they themselves make decisions (see Lesson Strategies section for ideas about how to introduce these models).

The model provided here is based upon one developed by the Hastings Center on Bioethics (Campbell, 1990) and has been widely used by educators in science classrooms. It has the following components:

- **Ethical Question**

  First, the decision-making framework asks students to consider the ethical question. This is in itself not trivial – awareness that an ethical dilemma actual exists requires 'moral sensitivity' (Rest, 1984) which often needs to be cultivated. Often, students will identify the ethical question only to return to modify it later. An ethical question often (but not always) includes the word 'should', and it is characterized by the fact that several competing solutions exist. In reflection on the moral nature of the dilemma, none of these solutions is without its problems, concerns, or issues. Examples of such questions include, "In which cases, if any, is the use of animals in research ethically justified?" "Is it ethical for scientists to pursue embryonic stem cell research?" or "How should donated organs be allocated?"

- **Facts: Known and Unknown**

  Students then determine which facts relevant to the question are known and which still need to be researched. If time permits, students can research the issue more deeply. This is an excellent place to incorporate additional science content. From additional research, or from content provided by the teacher, students identify stakeholders and their values.

- **Stakeholders and their Values**

  One of the most rewarding aspects of having students consider the position and values of different stakeholders is that it asks them to 'step into someone else's shoes'. While this is a valuable exercise at any age, it is particularly important for young people, who may struggle to view dilemmas from different perspectives. Such practice is also important for developing citizenship skills in students. In order to participate effectively in a pluralistic, democratic society, students need to be able to understand different perspectives, even though they may not agree with them.

Teachers can generate a list of stakeholders with their students, and then, in a classic 'case-study' approach, have students form stakeholder groups representing a single stakeholder position. Students discuss the values their stakeholder might bring to the issue, and the range of positions that the particular stakeholder might take. Next, the teacher can form mixed groups with one representative from each original stakeholder group. This mixed group will try to reach consensus or clarify the nature of their disagreement. This format is also explained in the Lesson Strategies section of the Primer.

- **Possible Solutions - Generating Options**

  Students are asked to generate several options for solutions. This is a brainstorming step, in order to provide a wide range of ideas. Thinking about solutions that different stakeholders would propose is one strategy. Solutions can be analyzed to consider which ethical principles are granted priority in each case.

- **Decision and Justification**

  When presented with an ethical dilemma, students are apt to quickly jump to their decision/position, without a sense of their justification. Alternatively, students may express that their position is 'simply what they believe' or what intuitively 'feels right'. The justification of the decision is a key element of the model. This section allows students to practice clarifying their reasoning. Here is where students can bring in their understanding of ethical perspectives and theories (highlighted in the Ethics as a Discipline section) in order to provide depth to their arguments. For example, ethical perspectives can help students clarify which of the possible solutions provides the best outcome for the greatest number (an 'outcome-based' perspective).

- **Action/Evaluation**

  The last steps consist of acting on the decision and evaluating the decision. Students should be aware that they could change their decisions in light of new evidence or information. Many elements of this problem-solving strategy are shared with scientific decision-making processes. The focus is on a reasoned, thoughtful methodology rooted in critical thinking. Additionally, the process of decision-making itself should be considered, in order to determine the extent to which it was fair and just.