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# About This Book

The *All-New Science Mind Stretchers* offers thirteen exciting mini-units designed to enhance student understanding of key science concepts. The units were developed utilising valuable cognitive taxonomies to structure sets of activities. Each unit includes:

- **Exploring a la Bloom**

A section based on Bloom's Taxonomy of Creative Thinking to inspire expansive, imaginative, and original thought

- **Using Multiple Intelligences**

A set of activities approaching a science topic from each of seven Multiple Intelligences, so that every student has a chance to shine

- **Using Williams' Taxonomy**

A section based on Williams' Taxonomy of Critical Thinking to help develop the thinking skills that will allow students to be successful in science-related and other areas

- **Research Topics**

A list of topics to inspire research in the field of science

- **Creative Writing Topics**

A list of topics to stimulate creative writing projects related to science fields

- **Assessment Product Options**

A list of suggestions for student products to include in assessment portfolios

- **Assessment Performance Options**

A list of suggestions for student performances

- **Student Activity Page**

Reproducible student activity page to help the student have fun applying newly gained knowledge

In the appendix are suggested topics for student reports organised according to science areas studies in the middle years, and an annotated bibliography. A comprehensive index makes all subjects easy to find.

After completing each unit, a student will have a deeper understanding of a key concept in the area of life science, earth science, or physical science. Even more important, the student's thinking skills will have been strengthened, enhancing his or her ability to engage effectively in debate and comparison, role playing, application of knowledge, analysis, evaluation, and solving problems creatively.

# Using Williams' Taxonomy to Study Batteries

- **FLUENCY**

List as many reasons as you can think of why people buy batteries.

- **FLEXIBILITY**

Categorise the reasons in your list according to ways batteries are used.

- **ORIGINALITY**

Think of an unusual or unique object that is not battery-operated but could be. Give reasons for your choice.

- **ELABORATION**

Defend or negate this statement about batteries: "Batteries are hazardous to your health."

- **RISK TAKING**

Tell what it takes to "get your batteries charged up" at school and at home.

- **COMPLEXITY**

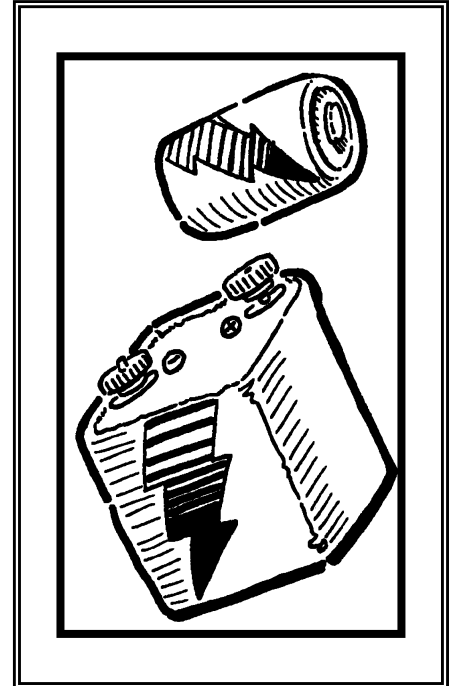
Explain how the meaning of the word battery differs when interpreted in a scientific sense from when the word is interpreted in a legal sense.

- **CURIOSITY**

Write down a list of questions that the owner of a bankrupt battery manufacturing plant might want to ask the owner of a battery manufacturing company on the Stock Exchange.

- **IMAGINATION**

Visualise a battery-free world. What would such a world be like?



# Research Topics

- 1• Find out how a car battery works.
- 2• Find out why batteries have different labels such as A, B, and C.
- 3• Find out the relationship of batteries to electricity.
- 4• Find out who invented the battery.
- 5• Find out where batteries are located in a variety of retail setting such as hardware shops, chemists, department stores, and discount shops.
- 6• Find out how batteries are manufactured.
- 7• Find out how people should dispose of dead batteries.
- 8• Find out why batteries can be poisonous to the environment.
- 9• Find out how the life of a battery can be determined.
- 10• Find out some possible uses for a battery.

