Beacon Media

Professional development for teachers

Inquiry-based learning

The Power Point presentation can be found at: www.beaconmedia.com.au – Key topics for Christian teachers

What is inquiry-based learning?

- Children find out through direct, hands-on experience rather than a lecture from the teacher.

- Step 1: Teacher introduces the science topic
- Step 2: Teacher finds out what the children ALREADY KNOW about the topic.
- Step 3: Teacher ask the children what they WANT TO KNOW about the topic.
- Step 4: teacher and children set up experiments or situations where they can FIND OUT what they want to know.
- Step 5: Children draw conclusions and record results
- Step 6: Find out more about the topic.

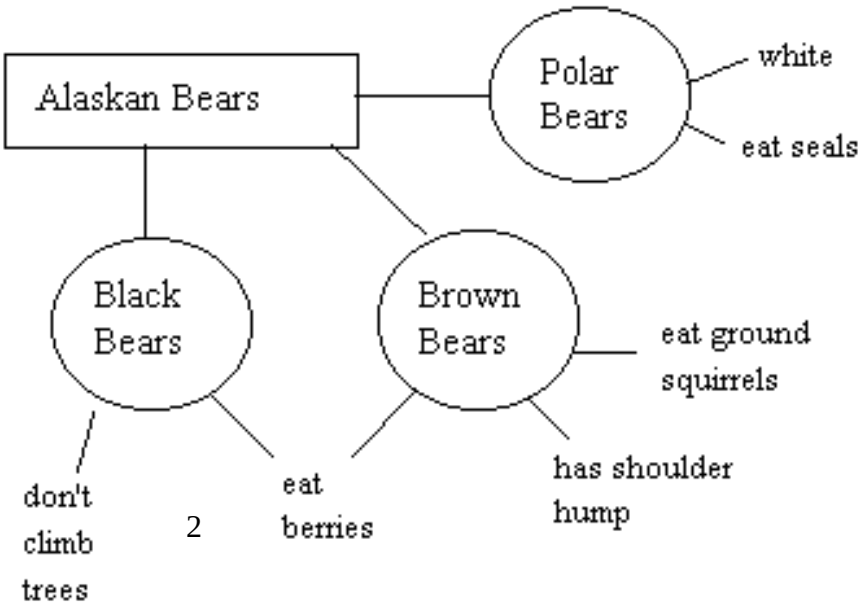
Step 1: The teacher introduces the topic

- In a Christian school the teacher introduces the science, social studies or health topic by explaining its connection with God and the Bible.
- The teacher could introduce the topic by saying, “For the next four weeks we are going to be learning about plants and how God provides for us through plants.”

Step 2: The teacher finds out what the students know

- The teacher can find out what the children already know by ASKING QUESTIONS.
- Or by inviting the students to explain what they already know about the topic.
- The teacher could ask, “Who would like to tell me what they know about insects?”
- The teacher records the students’ contributions by making a concept map.
- A large sheet of paper is preferable to writing the ideas on the board because you can keep it for reference in the next lesson.
- At this stage it doesn’t matter whether the ideas are right or wrong. They will be investigated later.

Example of a concept map:



Step 3: The children ask questions

- The teacher asks the children what they would like to know, or find out about the topic.
- Questions can start with: who, what, when, where, why, how
- On another large sheet of paper, the teacher writes the questions as they are presented by the children. This is stuck on the wall for later reference.
- Children are more motivated and involved because they are going to find out answers to their own questions.

- The teacher could ask, “Who has a question to ask about our topic?”

Step 4: Finding out

- The teacher sets the stage for an investigation.
- The children make predictions, then find out whether their predictions are right.
- For example, a student might predict that the sugar will dissolve in hot water but will not dissolve in cold water.
- The teacher can facilitate the investigations by asking the children questions while they are working.
- The teacher can move around the different groups and ask, “What do you think is happening here?”

What other methods could be used for finding out?

- Observation of nature
- Excursions
- Research
- Guest speakers

Step 5: Drawing conclusions and recording answers to questions

Children can draw up a table and record their results:

My question: My experiment: I predicted that: I found out that:

Ways of recording results

- Graphs
- Charts / tables
- Posters
- Drawings
- Concept maps
- Writing

Evaluation of a science experiment

The teacher can guide students in evaluating their results by asking:

- Were your results different to your predictions?
- Was there variation in results from different groups?
- Why might this be so?

Step 6: Is there anything else we need to find out?

- The teacher asks if the children have any more questions and the cycle starts again.
- More investigations are carried out.
- The teacher can assess what has been learned so far, and guide the learning of important points that may have not been covered. i.e. Is there anything that the children NEED to know that they haven't yet discovered?

Inquiry-based learning is discovery learning

Examples of activities:

- Predicting and experimenting
- Problem solving
- Constructing
- Observing
- Weighing and measuring
- Discussing
- Drawing conclusions and recording results

What do we need to set up an inquiry-based learning environment?

- Groups of children working together
- Space for groups to work
- Equipment for devising experiments
- Rules for using materials and equipment

Assessment of the unit

- Towards the end of the unit the teacher can assess the extent of knowledge the children have gained.
- The teacher and students together can make a large chart summarizing what they have learned.

Fill the gaps in knowledge

- Is there anything else the students NEED to know about the topic?
- Is there any important information about the topic that the children have not yet discovered?
- The teacher can guide the students in finding out anything else they NEED to know about the topic.
- e.g. provide a list of questions to promote thinking about any important pieces of information that might have been missed.
- The students can now find out the answers to these questions.

Check:

Have questions been asked and answered about God and the Bible?