

Teacher Directed Inquiry Unit Plan



Learning Context: Spiders
Curriculum Area Focus: Science
Strand(s): 1) Living World
 2) Nature of Science

Teacher: Megan Brett
Year Levels: 5 & 6
Curriculum Levels: 2-3
Duration: Week 1- 4, Term 3, 2011

Achievement Objectives:

1) Living World

Ecology

Level 2

Recognise that living things are suited to their particular habitat.

Level 3

Explain how living things are suited to their particular habitat and how they respond to environmental changes, both natural and man-made.

Evolution

Level 2

Recognise that there are lots of different living things in the world and they can be grouped in different ways.

Level 3

Begin to group living things into science-based classifications

2) Nature of Science

Understanding About Science

Level 2

Appreciate that scientists ask questions about our world that lead to investigations and are open-minded about the answer.

Level 3

Appreciate that science is a way of explaining the world and that science knowledge changes over time.

Key Competencies:

Thinking

Using language, symbols and text

Managing self

Relating to others

Participating and contributing

Values:

Excellence

Innovation, inquiry and curiosity

Diversity

Equity

Community and participation

Ecological sustainability

Integrity

Global Learning Intentions:

- 1) to learn more about how different living things can be grouped according to what they look like
- 2) to learn more about how spiders adapt to live in different environments
- 3) to get better at investigation

Summary of content area:

Plants and animals in and above the soil adapt to their habitat and depend on each other for their survival. Changes in any part of their environment affect the relationship between the plants and animals that live there, and their survival.

Skills and Strategies to be taught:

Learning to Learn

- Goal setting
- Organisation and time management
- Tracking and asking for assistance
- Collaboration and group work
- Self and peer evaluation
- Reflective practice

Thinking Tools

- De Bono Hats
- PMI
- Thinkers Keys
- Bloom's Taxonomy
- Fogarty's Intellect
- Thinking Maps
- Habits of the Mind

Research

- Questioning skills
- Key words- Identifying& using
- Internet searching
- Using contents & index
- Using websites
- Skimming, scanning & reading for detail
- Taking & making notes
- Sorting, interpreting & organising
- Citing references

Tools & Presenting

- Use of ICT
- Use of software
- Layout and design
- Vocabulary studies
- Listening
- Speaking
- Public speaking
- Discussion
- Performance

Assessment Approach:

Diagnostic:

K-W-L Chart

Formative:

Inquiry planner (self & teacher)
 Inquiry rubric (self & peer)
 Reflective Journal (teacher only)

Summative:

Report-written, poster, Ppt
 Inquiry rubric (self & teacher/s)

Groups (based on diagnostic assessment)

More confident: 8 students
Some confidence: 11 students
Low confidence: 3 students



Goal: To introduce the inquiry, create relevance, saturate with information, and become mini experts

Key Words:

Classify- to separate into groups with similar characteristics

Vertebrate/invertebrate- animals with/out skeletons

Insecta- insects

Arachnida- spiders

Characteristics- distinguishing features

Specific Learning Intentions:

- We are learning to use common features to organise living things into groups
- We are learning to tell the difference between spiders and insects.

Success Criteria:

- I will have been successful when I can name the common features that identify each group
- I will have been successful when I have created a table that compares the number of body parts, legs, eyes, habitat and diet between spiders and insects.

Learning Activities:

- Brainstorm and individual KWL charts
- Watch Spider Power DVD and discuss
- Classify pictures of items according to common characteristics-
 - living/nonliving (MRS GREN)
 - animal/plant
 - Invertebrata/vertebrate
 - Insecta/Arachnida
- Create a table of the key characteristics of spiders and insects, in groups.
- Research and label a diagram of a spider and an insect. Contrast and compare their differences and similarities. Add to chart of key characteristics.
http://www.landcareresearch/education/insects_spiders/insects
- Investigate and classify insects and spiders found in school garden, classroom, wood shed, and playground. Record in table and display results as a graph. Compare and contrast.

Thinking Activities

- Alphabet key about spiders
- Brainstorming key about spiders
Now list in categories (habitat, webs, diet, poisonous)
- Use some of the seven W's to ask questions about spiders
- What am I game – twenty questions about spiders
- Key words: teach key words as a concept (internet= tags) practice using them in sentences then paragraphs on the data projector.

Reflection

- How motivated are the learners?
- Did the graphic organisers/keys meet their needs?
- Are students able to use some of the seven W's to ask questions related to spiders?
- Have students been using ICTs?
- What barriers to learning need to be overcome?
- Do I have enough information and skills to go to the next stage?
- Have I completed my reflective journal?

Goal: To co-construct the big question and subsidiary questions and decide on key words.

Big Question:

How well have spiders adapted to survive in different environments?

Subsidiary questions:

What threats to there to their survival?

How do different spiders get their food?

Where have spiders moved to in different countries because the environment has changed?

How do spiders protect themselves from their predators?

How are spiders useful in their environment?

Key Words:

Habitat

Food

Poisonous

Threatened

Predator

Specific Learning Intentions:

We are learning how to ask rich questions about spiders that will answer the big question.

Success Criteria:

The answers to our questions will give us the information we need to evaluate whether spiders have adapted to changes in their environment.

Learning Activities:

- Wonderings wall to decide on big and subsidiary questions
- PMI to help decide on the big idea
- Open/closed questioning through interviewing (oral language)
- Seven Ws- discuss the purpose of questioning and create questions for their own spider
- Investigate the habitat, food catching techniques and types of prey of spiders identified in the school garden, classroom, wood shed, and playground. Compare and contrast.

Thinking Activities

- Create a wonderings wall (to steer them towards the big and subsidiary questions)
- Start creating a learning wall – post it notes, ongoing and ever changing
- PMI to help you decide on the big question
- Google searches using key words
- What If key. What if spiders became extinct? What if spider venom was found to be the cure for cancer?
- Question key. Write a question for the answer.

Reflection

- Do my questions relate to the big concept?
- Have student's learnt more about questioning? What evidence do you have?
- Are we using key words?
- Do I have enough information and skills to go to the next stage?
- Have I modelled using the Inquiry Rubric to evaluate my work and see where to next?
- Have I completed my reflective journal?

Goals: To plan, research, explore and interpret elements of our chosen learning focus and to answer the subsidiary questions

Key Words:

Advanced search
Adapt
Sources
Note-taking
Note-making

Learning Intention:

We are learning to use key words to search for specific information that answers a question

Success Criteria:

I have gathered enough detailed accurate information to answer my question

Learning Activities:

- What are key words and why are they useful? Identify the most important ideas in a paragraph and record as key words/phrases (see Reading week 1-4 plans)
- Write a list of key words to use in your search
Checkpoint 1
- Skills of note-taking (short, quick eg: txt)
- Watch a DVD and take notes
- Listen to a non-fiction text read aloud and take notes
- Integrate the information into paragraphs of related facts to write a report in our own words (see Writing week 1-3 plans)
- Search the internet using key words, language and reading age to narrow the search in the advanced search tool
- Use Delicious to bookmark useful websites (username: mrs brett, password: spiders2011)
www.tepapa.govt.nz
www.landcareresearch.co.nz
- Use library catalogue to research spiders

Thinking Activities

- Y chart.
- Use key words to search for specific information in books or by using key words as tags on the internet (Boolean and advanced searches).
- The Alternative key. Work out 3 ways a spider could catch its prey without a web
- Research and show – choose a spider that interests you and name 5 facts that make it unique
- Brainstorm key. Brainstorm solutions for removing a spider from the house without touching or killing it
- Have I used the Inquiry Rubric to evaluate my work and see where to next? My peer's work?

Reflection

- What resources have I used?
- Does the information answer our subsidiary questions?
- Did the graphic organisers meet their needs?
- Have students' ICT skills improved? (google searches)
- Have I completed my reflective journal?



Week 4

Goal: Answer the big question, creating presentations to share our learning with others.

Learning Activities:

- Examine exemplars of posters and powerpoints etc to determine SC
- Using their research, write an information report that answers their subsidiary question (see Writing plan week 4)
- Design or plan their presentation and record materials onto planner sheet. **Checkpoint 2**
- Make 3D spiders using fabric
- Create presentation

Thinking Activities

- Blog posts on school website
- The Inventions key. Design a machine for collecting and storing spider's silk or venom.

Reflection

- Is the apply stage well under way?
- Have I shared and conferred with colleagues about the inquiry process and this inquiry?
- Have I used the Inquiry Rubric to evaluate my work and see where to next? My peer's work?



Week 4

Goal: Evaluate and celebrate our learning.

Key words:

Evaluate
Assess
Analyse
Presentation
Audience

Learning Intention:

We are learning how to evaluate what we learned using a rubric

Success Criteria:

We have thought about how well we did in each area, and matched it to a stage on the rubric

Learning Activities:

- Share presentation
- Have we answered our big question?
- Comment on/ assess other student's presentations
- Use the inquiry rubric to self –assess
- Complete an individual reflection to record our own thoughts which will go in their Learning Portfolios. **Checkpoint 3**

Thinking Activities

- PMI about spiders changing to survive
- Inquiry rubric assessment

Reflection

- Have we answered our big question?
- How did our presentation go?
- Did I achieve a successful inquiry action? How do I know this?
- Do I know more about inquiry learning, using a rubric to guide me, and our inquiry model?

Student Assessment

- Assess against the achievement objective and the highlighted skills and strategies
- PMI on spiders
- Have I used the Inquiry Rubric to evaluate my finished work and reflected on the rubric as a learning aid?