Chrysalis (Pupa) to Butterfly + ‘The Birth of the Butterflies’

**Term**: 
Science and Technology, English, Creative Arts

**Rational**: 
In this lesson, students will begin to understand that the butterfly has different structures that serve different functions in growth, survival, and reproduction (Board of Studies NSW, 2012b). Understanding from Martin (2011), it is important to encourage students to take ownership of their own learning; hence providing a range of experiences for them to participate in and lead, where their thoughts and inputs are highly valued. Moreover, the lesson will incorporate a ‘dreamtime’ story about the birth of the butterflies, for students to appreciate an alternative knowledge through a different cultural lens. Such knowledge is a product of religious events from the Australian indigenous people, and passed from generation to generation by word of mouth or learned experience (Chigeza, 2007).

**Objectives**: 
For students to explore and learn about the fourth and final stage of the life cycle of a butterfly. This is achieved through a drama experience, use of secondary resources and a collaborative information page on a SMART notebook file on the IWB.

**Outcomes & Indicators**: (See Appendix A)

| KLA(s): | Science and Technology: ST2-10LW and ST2-5WT | English: EN2-2A | Creative Arts - Drama: DRAS2.3 |

**Key Scientific Knowledge (KSK)**:

**Chrysalis (Pupa) to Butterfly**: A complete metamorphosis occurs inside the chrysalis and when it bursts open, a butterfly emerges. At first its wings are weak and wet, however after a couple of hours body fluid called hemolymph is pumped into the wings to help it expand strong. Once it is ready to fly, it goes off to a variety of flowers, “making them one of nature’s migratory pollinators” (Department of Education and Early Childhood Development [Victoria], n.d.; Flight of the Butterflies, n.d.).

**Features**: The Monarch is a poisonous butterfly, with its bright colours relating to its gender. Females: darker in colour and have wider veins. Males: slightly smaller with two black spots near the bottom of each wing. They have specialised body parts to help it navigate and migrate long distances. It weighs less than half a gram. They consume nectar through tube-like proboscis that uncoils to sip food, and coils up again into a spiral when not in use (Monarch Butterfly Fund, n.d.; Flight of the Butterflies, n.d.; National Geographic, n.d.).

**Senses**: Monarchs taste and smell from chemoreceptors scattered across their bodies. They detect smells mostly through their antennae. Females have more chemoreceptors on their legs to help them find milkweed plants on which to lay their eggs (Flight of the Butterflies, n.d.).

**Lesson Development**:

[**5 mins**] **Shared reading.**

[**10 mins**] **Drama experience – Role Play.**
Half of the class to put together an act and perform it based on the life cycle of a butterfly – the metamorphosis process & the other half based on ‘The Birth of the Butterflies’ dreamtime story.

[**5 mins**] **THINK, PAIR, SHARE**
Q: What do you know about butterflies? → Students to 1) think on their own, 2) talk to the person sitting next to them about it, and then 3) share back to the rest of the class. + Share ‘Fun facts about butterflies’ (SMART notebook page 14)

[**25 mins**] **Stage 4 of the Lifecycle of a Butterfly.**
Watch the 3 mins video ‘Monarch Butterfly Emerging from Chrysalis’ ➔
https://www.youtube.com/watch?v=kIbM_tAAXwg and briefly discuss what they see, think and wonder from the video (SMART notebook page 15). Send students off to research on the final stage > Chrysalis (Pupa) to Butterfly and back around to the reproduction of eggs. They will record down any informative and relevant facts to do with the final stage of the metamorphosis process on the IWB. They can be creative when freely recording findings on the IWB; however the guided questions presented on the SMART notebook page should be answered. (SMART notebook page 16).

[5 mins] Conclude the lesson by having a read over/ look at the collaborated information page on the IWB with the class.

Resources:
An Interactive Whiteboard (IWB), SMART notebook file ‘Life cycle of a butterfly’ [Link on Weebly] [See Appendix C], relevant books in the classroom, iPads, and mini laptops.

Catering for Specific Needs:

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<th>Support</th>
<th>Extend</th>
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<td>Pair up and work with a friend/ student who is working at a standard to exceeding Stage Two level (Martin, 2011). Assist where necessary with positive reinforcements.</td>
<td>Research and record relevant information beyond what is asked on the guided questions.</td>
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Assessment:
Student progress can be measured by their understanding about the life cycle of a butterfly, in particular the final stage of the cycle ➔ by participating in the drama experience and class discussions; their input as they research using secondary sources and collaboratively record findings up on the IWB.

Evaluation:
Questions to reflect on: How did the experience go? Were the learning objectives met? Quality of teaching and learning that took place? What would you do differently if you were to do it again, and why?

Implications for Future Planning:
For students to identify ways that the environment can affect the life cycle of the Monarch butterfly and explore ways to conserve its habitats and promote prevention.
References:


Appendix A

Syllabus Outcomes and Indicators:

Science and Technology

**ST2-10LW**: Describes that living things have life cycles, can be distinguished from non-living things and grouped, based on their observable features.
- Identify some features of living things that distinguish them from non-living things, e.g. reproducing, growing and responding to stimuli.

**ST2-5WT**: Applies a design process and uses a range of tools, equipment, materials and techniques to produce solutions that address specific design criteria.
- Use a range of research techniques to access information relevant to the task.
- Use creative thinking techniques, including brainstorming, mind mapping, sketching and modelling.

English

**EN2-2A**: Plans, composes and reviews a range of texts that are more demanding in terms of topic, audience and language.
- Identify key elements of planning, composing, reviewing and publishing in order to meet the demands of composing texts on a particular topic.

Creative Arts: Drama

**DRAS2.3**: Sequences the action of the drama to create meaning for an audience.
- Makes decisions with others in various groupings about sequencing and dramatic structure to convey meaning.
- Organises the space to devise and present their drama.

Appendix C

Link to Weebly website where the SMART notebook file ‘Life cycle of a butterfly’ is. ➔ [http://stage2lifecycles.weebly.com/](http://stage2lifecycles.weebly.com/)