BCcampus
Learning. Doing. Leading.

FLO FRIDAY
Inductive Learning –
Designing Activities to Learn Through Examples

Facilitator: **Annie Prud'homme-Généreux**

Hosted by Gwen Nguyen, L & T Advisor, BCcampus

Gwen Nguyen, BCcampus, gnguyen@bccampus.ca

Nov 18, 2022

BCcampus

Learning. Doing. Leading.

Since time immemorial, the səlilwəta?ɬ təməxʷ (Tsleil-Waututh), Skwxwú7mesh-ulh Temíxw (Squamish), xʷməθkʷəyəm (Musqueam), WSÁNEĆ (Saanich), and the Esquimalt and Songhees Nations of the Ləkʷəŋən (Lekwungen) Peoples have walked gently on the unceded territories where we are grateful to live, work, and play. We are committed to building relationships with the first peoples here, based in honour and respect, and we thank them for their hospitality.

Outcomes from Session

1 EXPERIENCE inductive learning as learners

2 REFLECT on essential ingredients

3 CONSIDER how to implement

Agenda

Example 1

Example 2

Debrief:
What is Inductive Learning?

Wrap up

Resources Website

https://bit.ly/FLOInductive

| Example 1 | Example 2 | Inductive Learning | Wrap Up |

INSTRUCTIONS

1. **Goal**: Define "what is life?"

2. Go to

3. Go to your slide

4. Introduce yourselves

5. Suggest: One person shares their screen

6. Discuss:
    1. What are characteristics common to all living organisms on your slide?
    2. Compare your list to the non-living things on your slide.
        You want characteristics of life that are unique to living things. Refine your list so that your characteristics only apply to living organisms.
    3. Come back with a list of 2-3 characteristics unique to living organisms on your slide.

7. 7 min

Example 1 | **Example 2** | **Inductive Learning** | **Wrap Up**
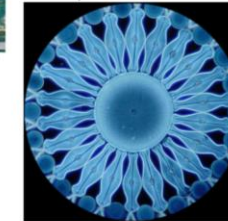
One volunteer:

Please share <u>ONE</u> characteristic of life that your team identified that seems to be unique to the living organisms on your slide.

| Example 1 | Example 2 | Inductive Learning | Wrap Up |

If you designed this activity,
What might be important things to consider in
CHOOSING THE EXAMPLES that learners will work with?

| Example 1 | Example 2 | Inductive Learning | Wrap Up |

INSTRUCTIONS

1. **Goal**: Defining quality for your mid-semester assignment (a concept map)

2. Go to

3. Suggest: One person shares their screen

Below are concept maps from past learners in this course, along with a grade received for the work from the instructor. Based on this information, identify characteristics of a good concept map. Discuss the relative importance of each characteristic to creating a good one.
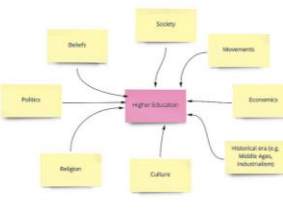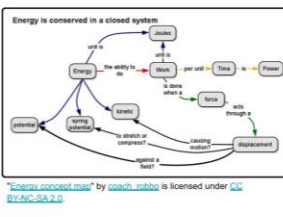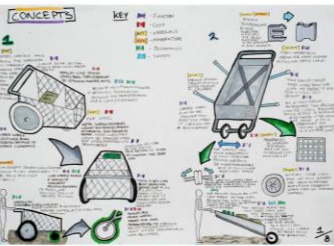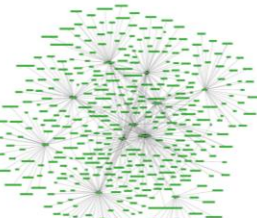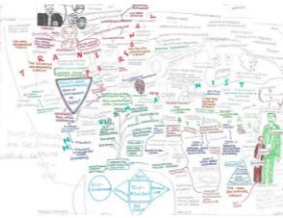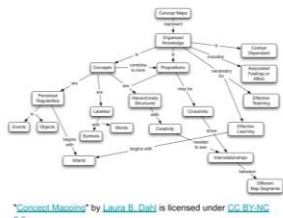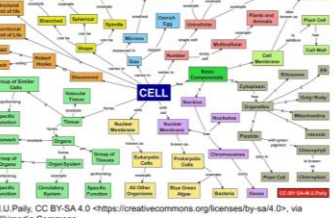
4. Compare the 8 concept maps in the context of the grades they received.
   What are elements of a great concept map?
   What stood in the way of the concept maps that did not earn a good grade?

5. Deliverables:
   1. **LIST** the characteristics of a high quality concept map.
   2. What is the **RELATIVE IMPORTANCE** of each one to creating an excellent concept map?

6. 5 min

| Example 1 | Example 2 | Inductive Learning | Wrap Up |

Criterion	Mastery (up to 100% of grade)	Proficient (60% of grade = a passing grade)	Developing (0-60% of grade)
Complexity /10		Min. of 10 relevant concepts	
/			
/			
TOTAL /25			

| Example 1 | Example 2 | Inductive Learning | Wrap Up |

| Example 1 | Example 2 | Inductive Learning | Wrap Up |
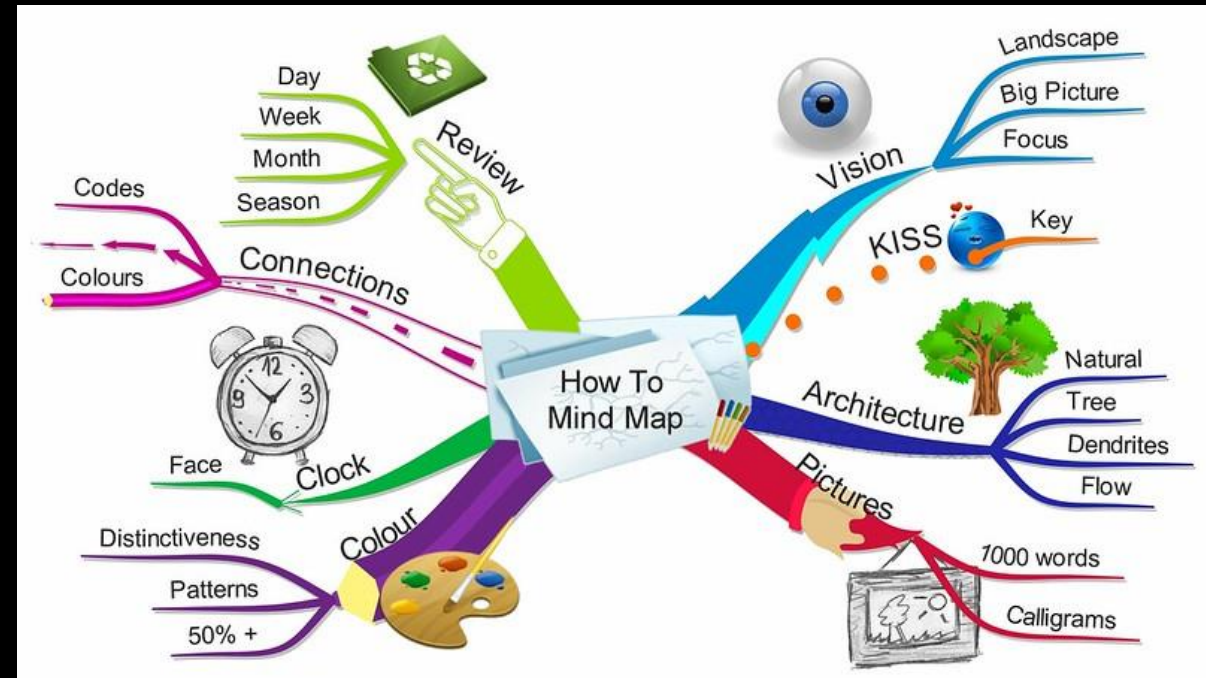
1. As an instructor, how to you **KNOW WHAT QUALITY IS** in a student submission?

2. How did you **LEARN** that?

| Example 1 | Example 2 | **Inductive Learning** | Wrap Up |

You have experienced two examples of inductive learning.

1. Based on their commonalities, how would you **DESCRIBE INDUCTIVE LEARNING**? How is it different to how learners are typically taught?

2. **TEST** your hypothesis about its definition:
   Is **INQUIRY-BASED LEARNING** a form of inductive learning?

3. What are the **INGREDIENTS** for an inductive learning activity?

4. In what **LEARNING CONTEXTS** is inductive learning a good choice? Why? (when might it be worth investing the time to do this?)

| Example 1 | Example 2 | **Inductive Learning** | Wrap Up |

Learners apply general principle to specific **examples to confirm they understand**

Deductive Learning (traditional)

Learning Progression

Learners generalize observations and build abstractions. They build their own schemas about a concept.

Inductive Learning

General Principal
(lecture, books, videos)
Experts tell learners what they know

Learners compare examples, make **hypotheses** about their schemas, and **test them** with the examples.

Example 1	Example 2	Inductive Learning	Wrap Up

Inductive Learning:

Show, Don't Tell

| Example 1 | Example 2 | **Inductive Learning** | Wrap Up |

ADVANTAGES

From the research literature

- Deeper understanding

- Longer lasting

- More transferable

Annie's observations

- Elicits curiosity

- Confidence in abilities to think

DISADVANTAGES

- Takes time

| Example 1 | Example 2 | Inductive Learning | Wrap Up |

How might you **APPLY THIS** in your own classroom?
How would it look like in **YOUR DISCIPLINE**?

Example 1   **Example 2**   **Inductive Learning**   **Wrap Up**

Outcomes from Session

1 EXPERIENCE inductive learning as learners

2 REFLECT on essential ingredients

3 CONSIDER how to implement

| Example 1 | Example 2 | Inductive Learning | Wrap Up |

Workshop Evaluation

Please consider completing this BCcampus survey to provide feedback on this workshop and improve the this and future offerings.
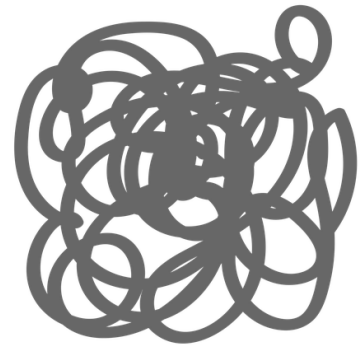
Faculty Focus Article

Here is a short (5 min read) article that Annie wrote in Faculty Focus to explain Inductive Learning and help educators consider it for their classrooms.

Activity: What is Life?

This article, published by Annie in the journal *American Biology Teacher*, describes the activity *What is Life?* that was abbreviated in this session.

TEDx Talk by Ryan Rerby-Talbot

Ryan, a former Provost of Quest University Canada and excellent mathematics educator talks about his approach to the classroom, where he lets students struggle with messy problems to learn larger principles. Some might call it inquiry-based learning, but something about learning by being "in the mess," as Ryan calls it, makes me think of inductive learning.

Activity: Nature of Science

This article describes the *Nature of Science Card Game* that was the basis for the second activity in this workshop.
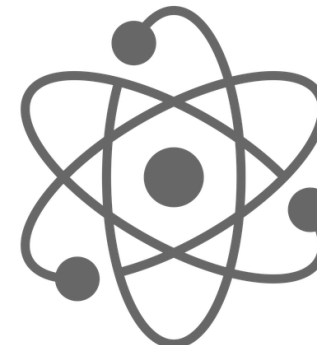
Example 3 - Nature of Science

If you want to do the *Nature of Science* activity online (the one describe in the activity to the left), here are slides to help you do this in your class. Copy these Google Slides to your Google drive (follow the instructions). Each team can use one slide, and each person in a team can use one column.

Please complete the **SURVEY**
Provide feedback on this workshop
So that we can improve and make them even more relevant to your needs
https://forms.office.com/r/kSgdYBgnXM

Thank you everyone!

BCcampus
Learning. Doing. Leading.