

Letting Go of the Wheel: What Does It Mean to Teach an Inquiry-Driven Class?

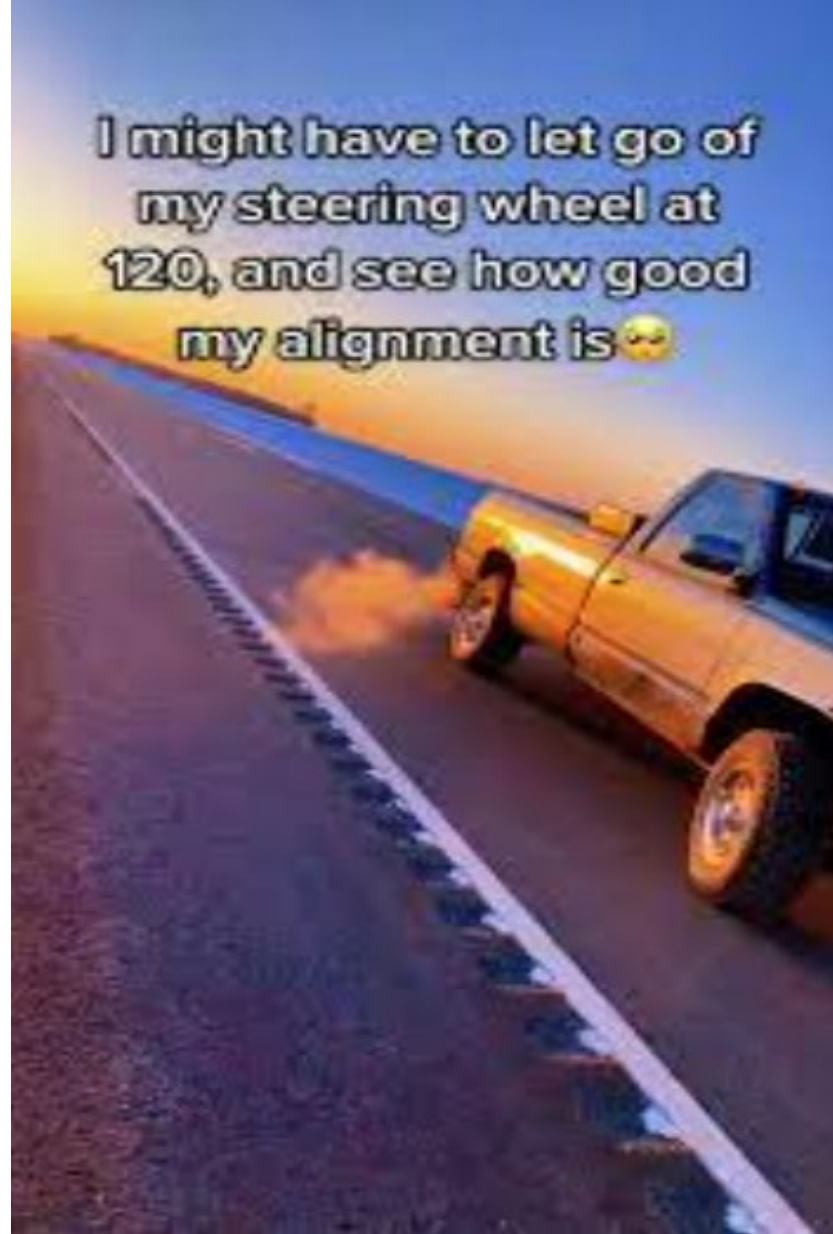
Jessica Green and Joseph Hanks

JUNE 2, 2023

BYU General Education
UNDERGRADUATE EDUCATION



I might have to let go of
my steering wheel at
120, and see how good
my alignment is 😏



What is inquiry-driven teaching?



1. What do you think is going to happen?

2. a. What actually happened?

b. Was this different from what you expected?

How?

c. Why do you think that happened?

d. Use the materials at your station to try to make water do what I made it do, and try to figure out why it does that.

3. What is it about water that makes this possible?

(Use all the resources available to you to find a trustworthy, scientific explanation, and cite your sources)

4. What are some ways that this property of water works inside or outside the bodies of living things to make life possible?

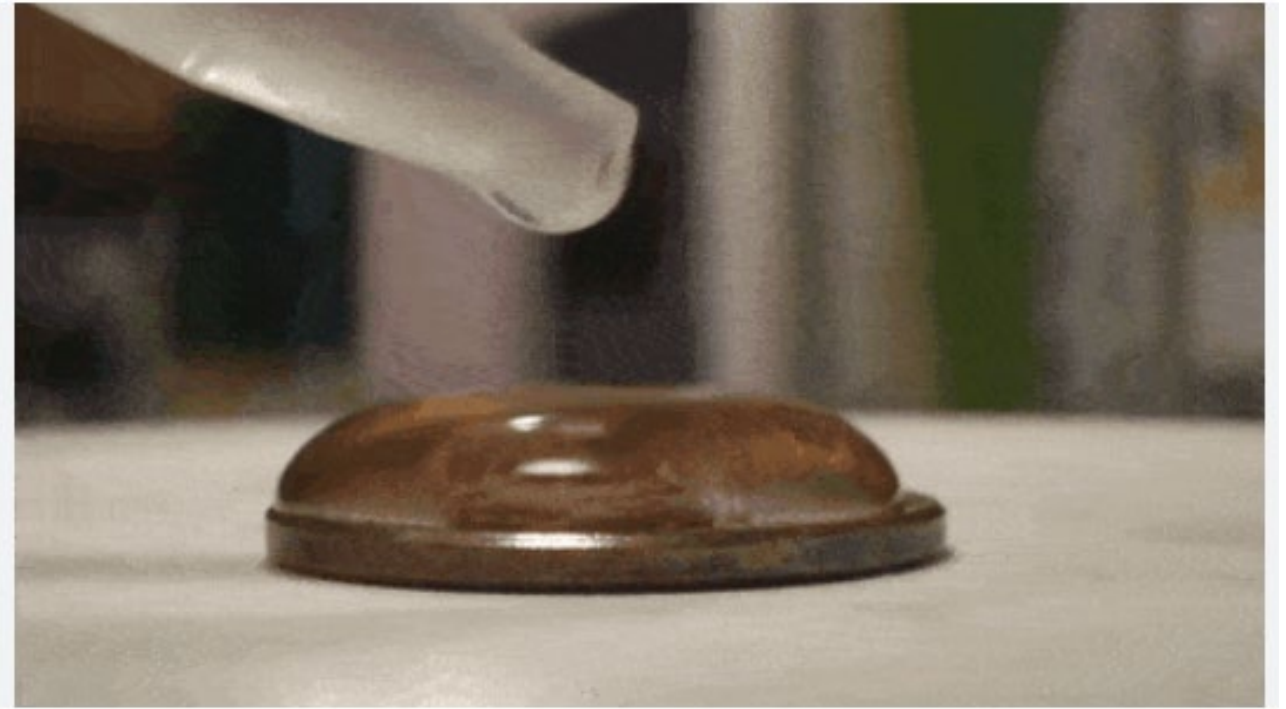
5. [This paper will be your Exit Ticket today. On your way out of class, please leave this paper in the usual tray.]

In the space below, please briefly explain one way that water makes life possible, from a biochemical standpoint.]



Curiosity #1







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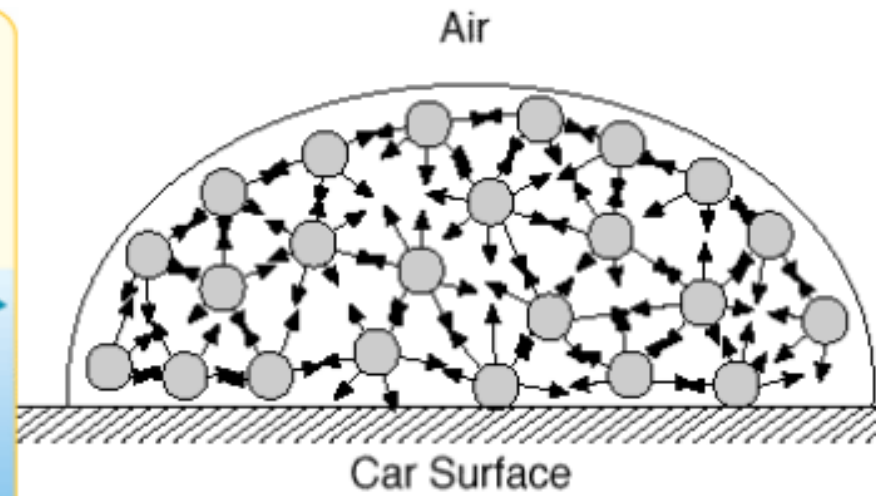
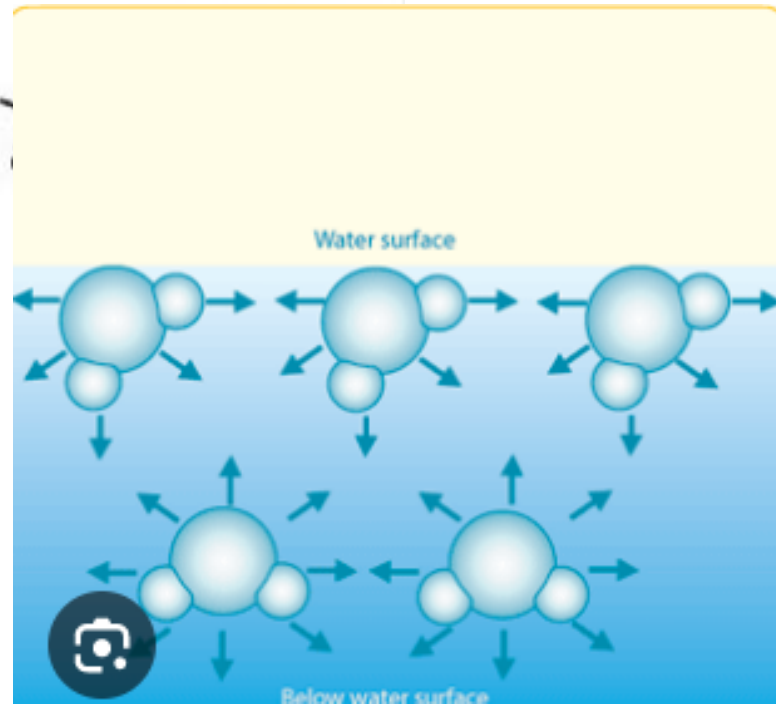
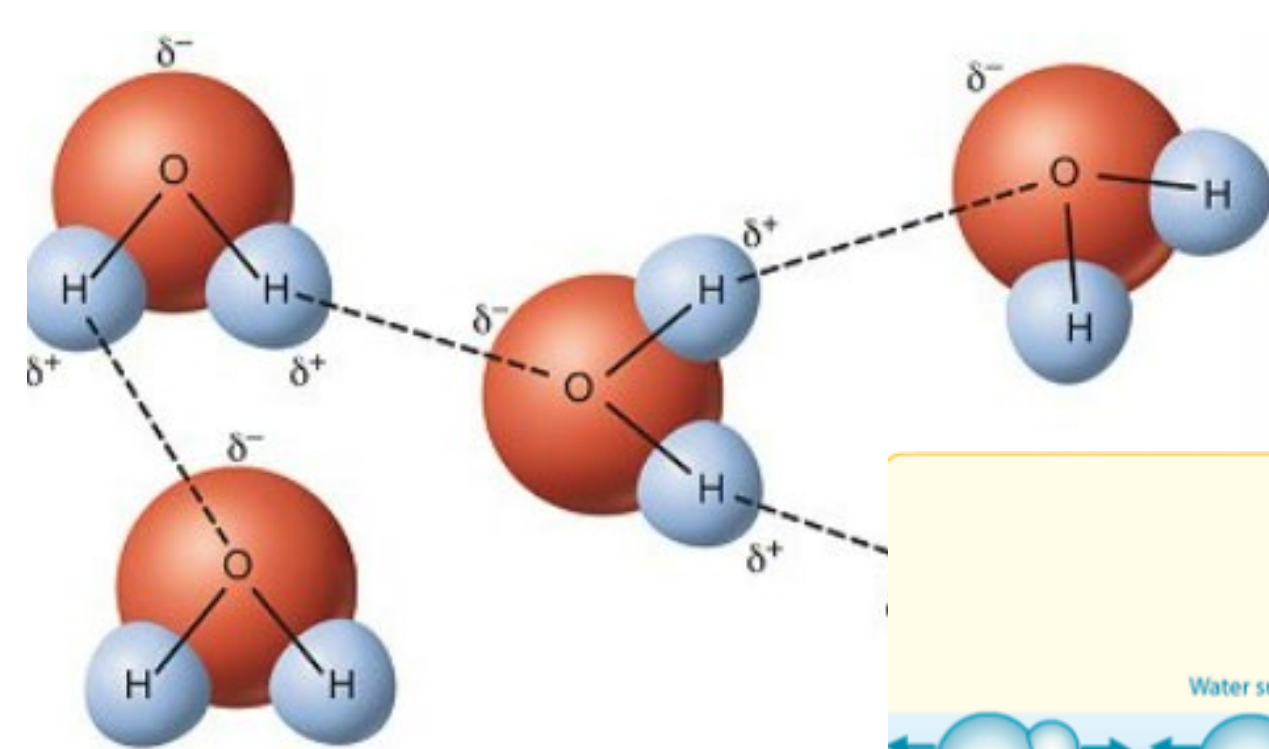


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Molecules inside a water drop are attracted in all directions. Drops on the surface are attracted to the sides and inward.



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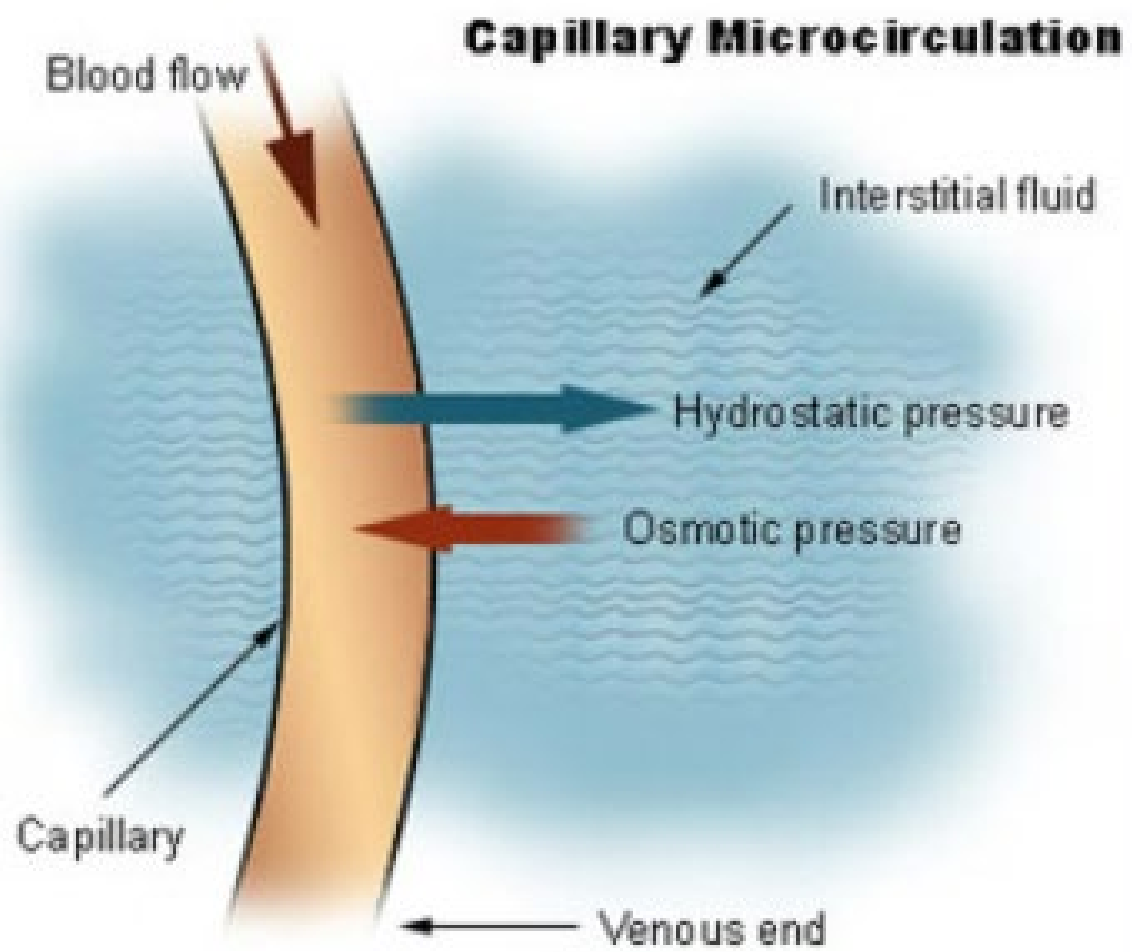
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Structured Inquiry

1. *Engage*

2. *Explore*

3. *Explain*

4. *Expand/Extend*

5. *Evaluate*

Bybee, R. (1987). The 5E Instructional Model. The Biological Science Curriculum Study.





Question #1

What makes something a good source of information?
(What gives a source authority?)

Question #2

Is the US birth rate going up? Or going down?



Is the US birth rate going up? Or going down?



CBS News

<https://www.cbsnews.com> › Health

U.S. birth rates drop as women wait to have babies

Jan 12, 2023 — According to the report, from 2015-2019, **56.7% of women age at least one child**. As of 2019, the most recent year included, birth ...

You visited this page on 5/31/23.



The Ohio State University

<https://news.osu.edu> › falling-birth-rate-not-due-to-les...

Falling birth rate not due to less desire to have children

Jan 12, 2023 — Still, the total **fertility rate** in the **United States** was 1.71 in 2019, the lowest level since the 1970s. What's **going on**? The results suggest ...

U.S. Birth Rate 1950-2023

Population

Economy

Trade

Health

Education

Development

Labor Force

Environment

Crime

Immigration

Other

Population

Growth Rate

Density

Urban

Rural

Life Expectancy

Birth Rate

Death Rate

Infant Mortality Rate

Fertility Rate

Chart and table of the U.S. birth rate from 1950 to 2023. United Nations projections are also included through the year 2100.

- The current birth rate for U.S. in 2023 is **12.023** births per 1000 people, a **0.09% increase** from 2022.
- The birth rate for U.S. in 2022 was **12.012** births per 1000 people, a **0.09% increase** from 2021.
- The birth rate for U.S. in 2021 was **12.001** births per 1000 people, a **0.09% increase** from 2020.
- The birth rate for U.S. in 2020 was **11.990** births per 1000 people, a **0.09% increase** from 2019.



Advisory Board

<https://www.advisory.com> › daily-briefing › 2023/02/02

Charted: US fertility rates are (finally) on the rise

Feb 2, 2023 — In 2021, U.S. fertility rates among women aged 15 to 44 rose to **56.3 births per** ...





Competition

1. Anonymous: no one wants to look silly in front of the really smart person they just sat down next to, so we'll use Menti.
2. Do research like a college student, on a tiny phone screen.
3. Finally, you'll need to cite evidence for your informed opinion.



"In God we trust.
All others must bring data."

- Dr. W. Edwards Deming

Up. Evidence: my primary is 90
kids. That's a lot of sunbeams!

Down. Evidence: I didn't get
any trick-or-treaters this year.





Question #2

Is the US birth rate going up? Or going down?

Question #1

What makes something a good source of information?

(What gives a source authority?)





Content or Topic	Questions That Hook	Questions That Lead	Questions That Guide	Essential Questions
Nutrition	Can what you eat help prevent zits?	What types of foods are in the food groups?	What is a balanced diet?	What should we eat?
Novel Study on <i>Cather in the Rye</i>	Do you know ant teenagers that act crazy? Why do they act that way?	When (time period) and where (location) does the novel take place?	Is Holden normal? (Note: The main character is telling the story from a psychiatric hospital.)	What makes a story timeless? What “truths” can we learn from fiction?
Musical Scales	Do your parents like your music?	What are the notes of the C major scale?	Why would a composer use a major as opposed to a minor scale?	What distinguishes music from “noise”? What influences musical tastes (e.g., culture, age)?
Constitution/Bill of Rights	Do you agree with the “stand your ground” laws?	What is the Second Amendment?	Does the Second Amendment support “stand you ground” laws, according to the courts?	<p>Which constitutional principles are timeless, and which should be amended if outdated or outmoded (e.g., only white males were seen as “persons”)?</p> <p>Where is the balance between personal freedoms and the common good?</p> <p>Is the Fourth Amendment or any other parts of the Bill of Right out of date?</p>
Psychology/Human Behavior	Why do kids sometimes act stupid when they are in groups?	Who was B. F. Skinner? What is behaviorism?	What are the similarities and differences among behaviorism, Gestalt psychology, and Freudian psychology?	Why do people behave as they do?

Jay McTighe, *Essential Questions: Opening Doors to Student Understanding* (13)





- What is a human right?
- How do I form and strengthen healthy relationships?
- How can recognizing the major patterns of life on Earth help me develop deep curiosity and critical thinking?
- What is practical citizenship?
- How do artists perceive the world in ways that change our own perception?
- What is the most important, influential, or valuable kind of music in our communities?
- What role does scientific data play in answering controversial questions?
- What is the relationship between myth, memory, and history?





Inquiry-Driven Learning Concerns

- How do you direct the learning once you turn the students loose on the problem?
- What roadblocks might your students encounter?
- What about students that waste time, don't stay on task?
- What are the types of resources that they'll need?
- What access to information will they need?
- Fear of being wrong, failure, discomfort of stepping outside the traditional learning paradigm





Creating an inquiry-friendly classroom

- Establish the culture of
 - It's okay to take risks
 - It's okay to not know the answers
 - It's okay to make mistakes



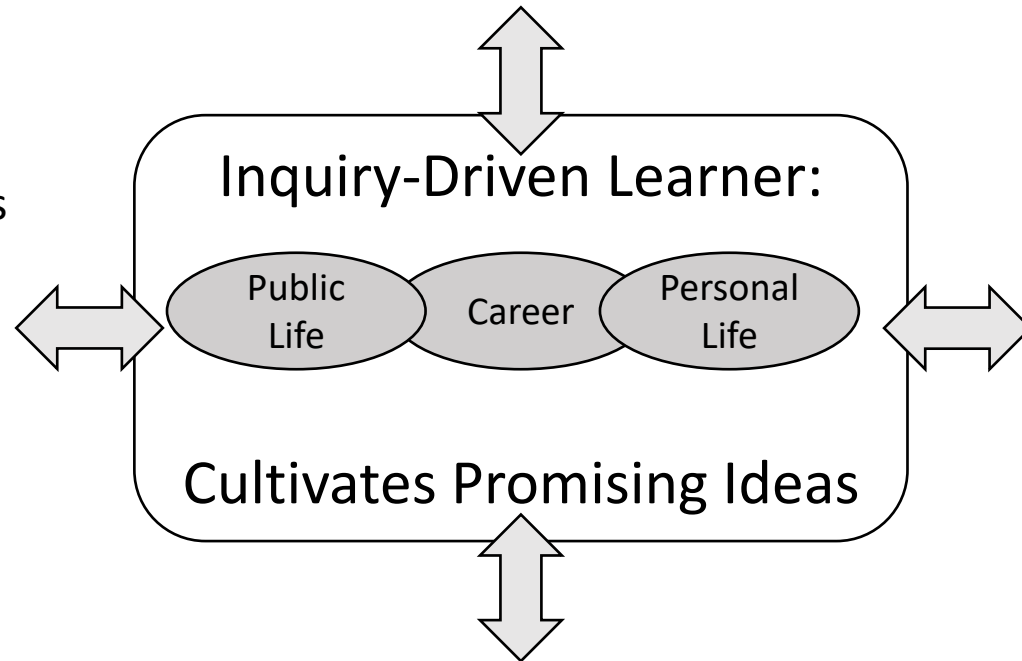
Inquiry-Driven Learning Outcomes

Core Qualities of Mind

- Explore Ideas with Enthusiasm and meet Challenges with Resilience
- Embrace Ownership in the Pursuit of Ideas
- Question Self, Extant Knowledge, and Authorities
- Engage in Spirited Dialogue and Collaboration
- Contemplate
- Commit to Inquiry on Behalf of Self, Society, and Humanity

Critical Thinking Skills

- Frame Burning Questions
- Access, Understand, and Dialogue with Extant Knowledge
- Analyze, Synthesize, and Interpret Knowledge and Information



Capacity to Express and Communicate Ideas

- Transform Ideas into Language
- Communicate Ideas through Writing and Speaking

Expertise in Divergent Modes of Inquiry

- Apply Divergent Approaches to Problem-solving
- Pursue Inquiry as a Dynamic and Recursive Experience

Clifton Conrad & Laura Dunek
Cultivating Inquiry-Driven Learners (68)



1. What elements of inquiry-based learning do you think are most applicable to you and the courses you teach?

2. Think of and write down a learning activity that you have students complete in one of your classes, and which you think could benefit from an inquiry approach:

3. How could you apply elements of inquiry-based learning to make this activity more inquiry-based?

4. Share your ideas in #3 above with a partner and get their feedback. Based on their feedback, what modifications could you make to this activity, to make it more inquiry-based?

Now Try It Yourself...



Good luck as you
build more inquiry
into your classes!



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