Assessment Strategies for Deeper Learning in the Active Classroom

Learning Science

Using iClicker software to move into higher level learning

What small change will you make this semester to take your students to a deeper level of learning?

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Deep Learning

Learning is hard, it is supposed to be hard! (Brown, Roediger, McDaniel, 2014)

Motivation (flow) is highest when students are asked to perform just slightly higher than they have done in the past. (Csikszentmihalyi, 1975) (Pink, 2009)

Growth Mindset – Right strategies, effort, and belief in the student. (Dweck, 2016)

“The greatest teacher, Failure is” ~Yoda

Mass practice vs. Mixing up your practice

How to mix up your practice:

Spaced practice

Interleaved concepts

Varied practice

Immediate recall test:

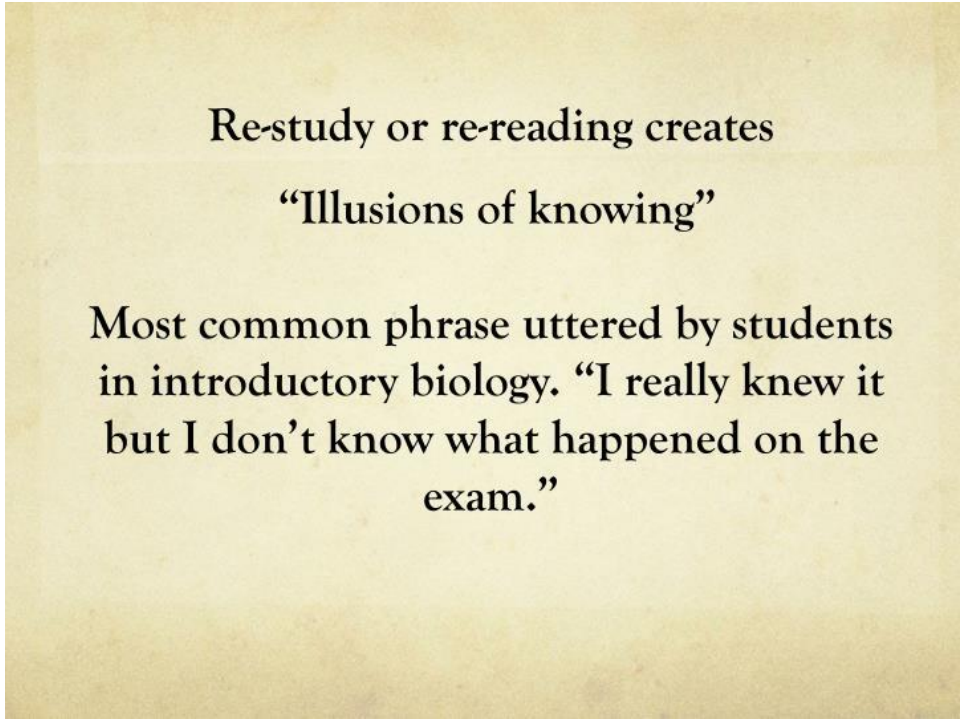
Mass 89% vs. Mixed 60% correct

Testing the same material 1 week later:

Mass 20% vs. Mixed 63% correct

Brown and Roediger, (2015)

Illusions of Knowing



Bjork, Dunlosky, & Kornell, 2013

How students think they learn best?

- Rereading text
- Rereading notes
- Having the book or notes open

How learning works in the brain?

- Talk about the content out loud
- Quiz yourself or others
- Practice/use content in another way

Testing Effect

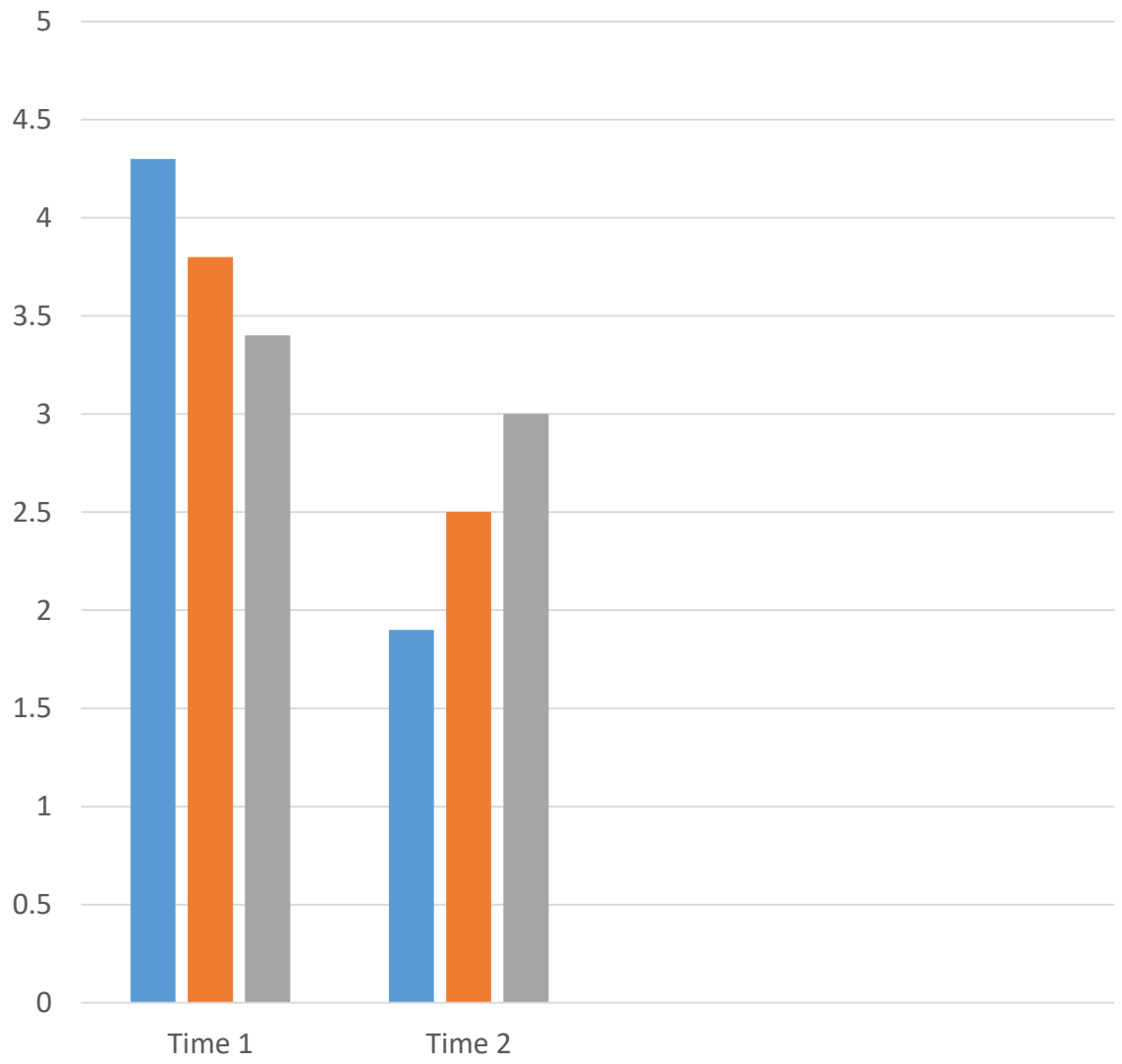
SSSS vs SSST vs STTT

(S=Study, T=Test)

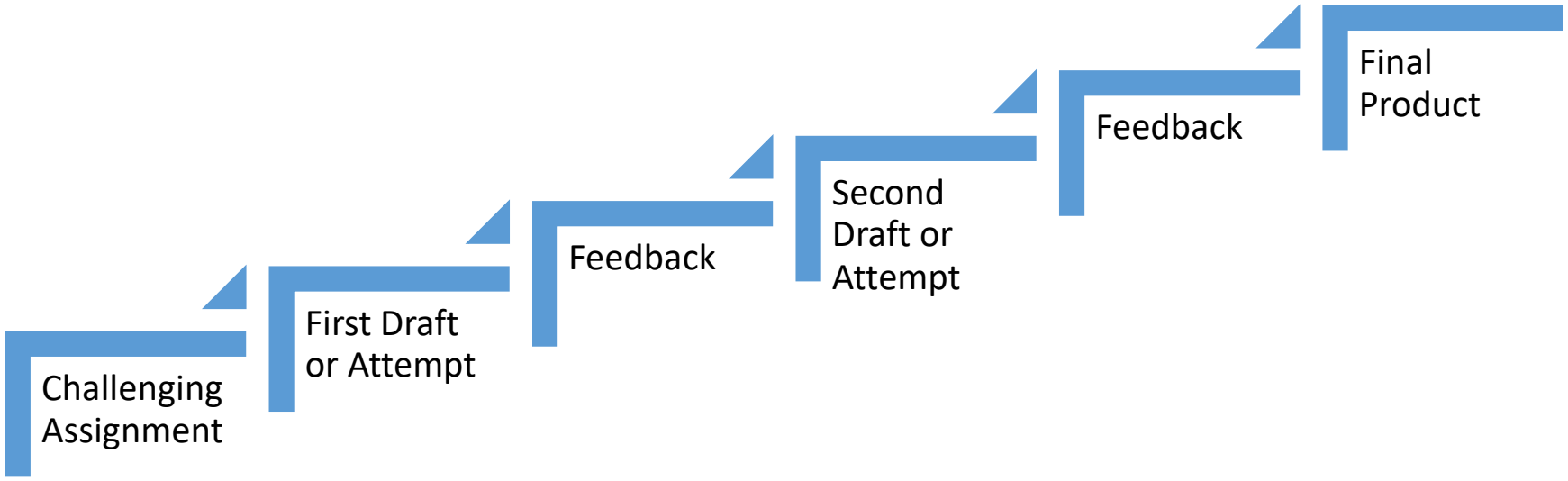
1 Immediate results

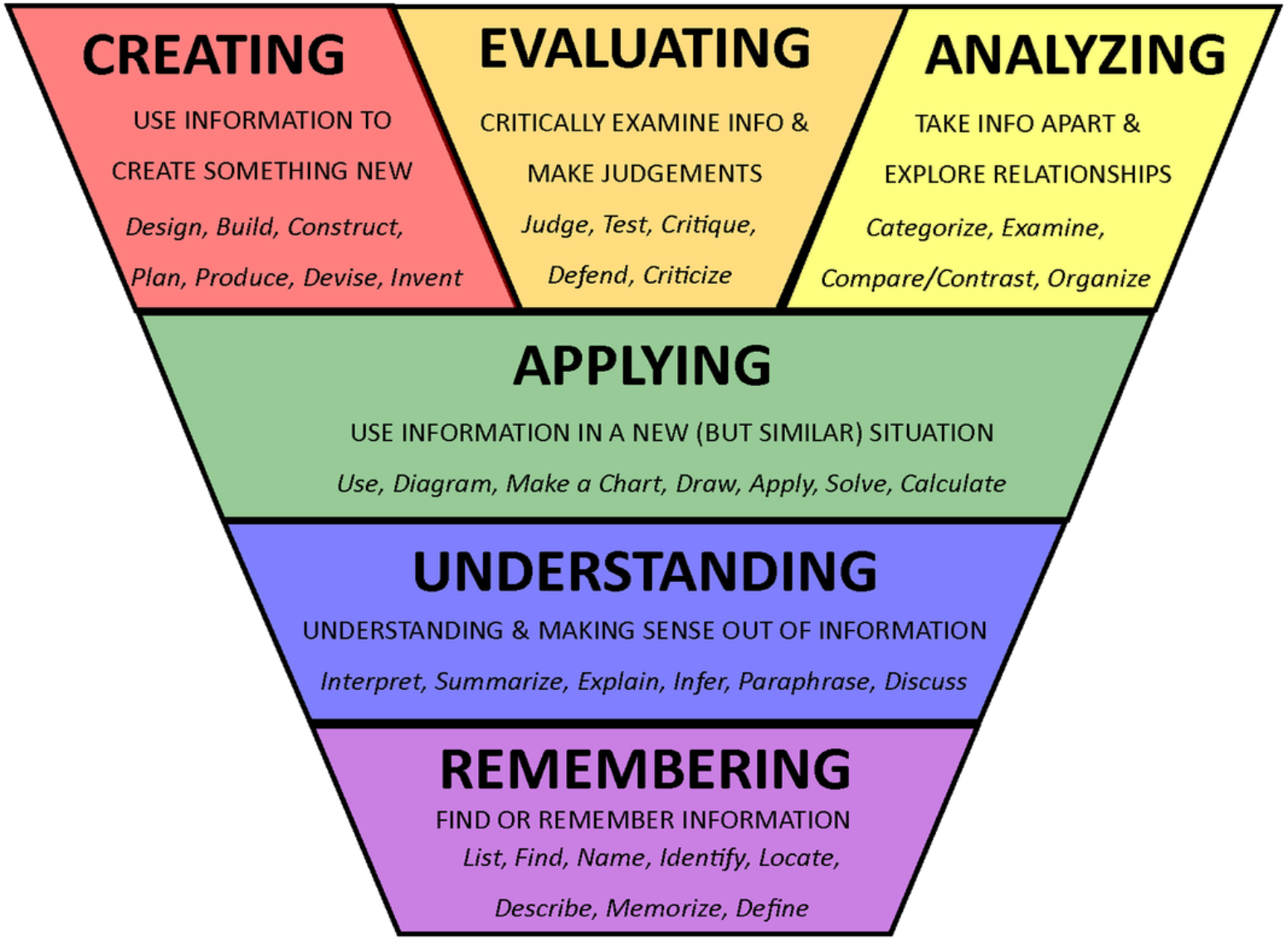
2 Delayed learning

Roediger & Karpicke (2006)



Re-thinking Assignments: An Equity Issue (Taras, 2006)





Motivation is highest when students are challenged just above their comfort level.

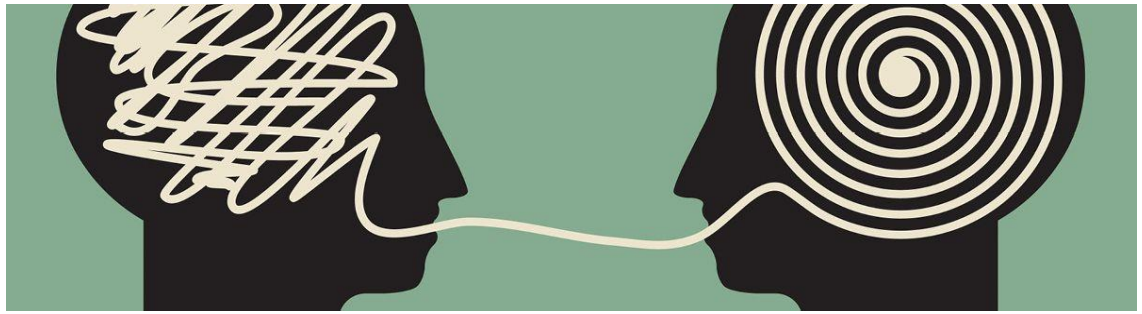
Experienced learners: Need all levels of questions.

Novice learners: Need low level questions.

Power of the Pause

When learning takes place

Make sense of /construct meaning
Interpretation of Why and How



Learning Science

Activating Prior Knowledge

Mixing up your Practice

Illusions of Knowing

Testing Effect

Scaffolding Summative Assessments

Levels of Learning

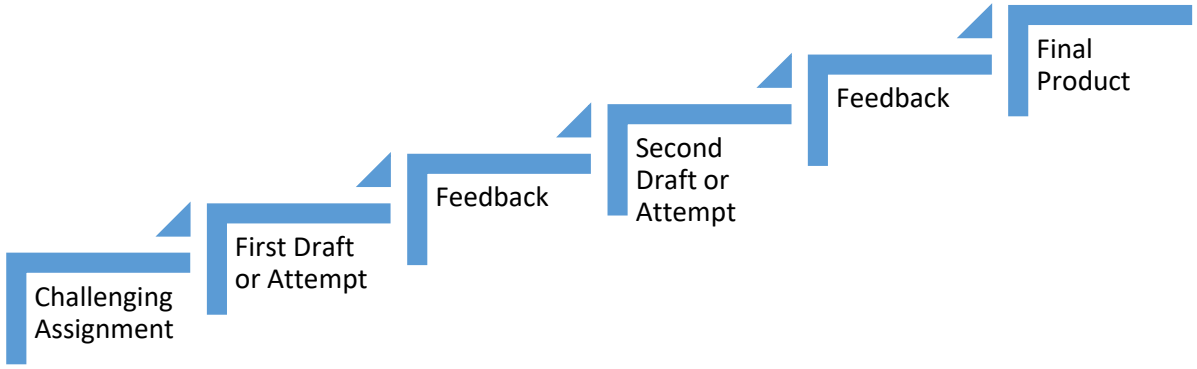
Power of the Pause


Session
Question 2
Two organisms have a symbiotic relationship when:
A. they eat each other.
B. they help each other.
C. they mate with each other.
D: they go out dancing together.
E: none of the above.
YOUR ANSWER:
B
CORRECT
CORRECT ANSWER:
B
REEF
POLLING
RESULTS
PARTICIPANTS
Multiple Choice
00:04
24
Results
Question 1
Two organisms have a symbiotic relationship when:
A. they eat each other.
B. they help each other.
C. they mate with each other.
D: they go out dancing together.
E: none of the above.
Question 2
Question 2
Multiple Choice
100%
50%
35
15
4
4
8
A
B
C
D
E
Participants
Name
Responded
#AF2340082
Debbie King
Chris Thompson
Sarah Jones
Frank Burns
Tim Washington
Heather White
Vincent Rouso
Tom Redfield
Rebecca Evans
Jane Donner
Natalie Jenkins
Bill Truman
Ken Fredericks
Jennifer North
iclicker+
iclicker2

Summative Assessments

Used to **evaluate student learning** in the form of knowledge, skills, and thinking **at the end** of a project, unit, course, or semester.

Summative assessments are usually high stakes, meaning high stress with high point values.



Selected Response	Performance-Based Assessments			
	Constructed Response	Products	Performances	Process-Focused
○ Multiple Choice ○ True-False ○ Matching ○ Ordering	○ Fill in the blank • Words • Phrases ○ Short Answer • Sentences • Paragraphs ○ Label a diagram ○ Show your work ○ Visual representation • Graphic Organizer • Concept map • Flow chart • Graph • Table • Matrix • Illustration • Fish Bone	○ Essay ○ Research paper ○ Journal ○ Lab report ○ Short story ○ Play ○ Poem ○ Portfolio ○ Art Exhibit ○ Science Project ○ Build a model ○ Video ○ Audio recording ○ Spreadsheet ○ Display ○ Web page ○ Brochure ○ Tip Sheet	○ Oral Presentation ○ Dance/Movement ○ Science experiment ○ Demonstration ○ Athletic Competition ○ Dramatic Reading ○ Enactment ○ Debate ○ Musical Recital ○ Skit ○ Role Play ○ Scenario ○ Speech	○ Solve a problem ○ Case Study ○ Create a Sequence ○ Oral Questioning ○ Observation ○ Interview ○ Conference ○ Process Description ○ “Think Aloud” ○ Learning log

Summative Assessment Strategies

High level MC question Process

Provide the Next Step in a Sequence

Dr. Quipler is working with a 19yr old college student who discloses experiences of childhood abuse. She learns there is still a minor in the home and the client thinks the abuse may be continuing. Dr. Quipler has reminded the client about limits of confidentiality, consulted with a colleague, and is considering calling child protective services. What is the next thing Dr. Quipler should do to ensure she practices ethically?

A. weigh pros/cons of both calling & not calling

B. consult with her client about the client's wishes

C. make her decision

D. review what the laws and ethics codes say

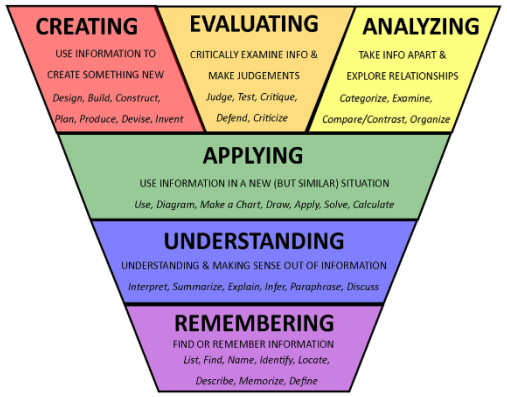
High level MC question Performance

Which one of the following scenarios best represents operant learning?

A. Amy often tells quirky jokes when she meets new people because they always laugh and this makes her feel good.
B. Kevin gets up at 6:00am every day because that's what he did when he was in the army, 10 years ago.
C. Judith uses "peach belini" lotion from bath & body works because it reminds her of her grandmother and this makes her happy.
D. Ryan watches his brothers closely as they practice soccer moves; he then goes onto the field and tries the same move and scores.

Turning your WHY questions into MC

-justify procedures or methods



Why is adequate lighting necessary in a balanced aquarium?

A. Fish need light to see their food

B. Fish take in oxygen in the dark

C. Plants expel carbon dioxide in the dark

D. Plants grow too rapidly in the dark

Turning your WHY questions into MC

-interpret cause and effect

Why does investing money in common stock protect against loss of assets during inflation?

A. It pays higher rates of interest during inflation

B. It provides a steady but dependable income despite economic conditions

C. It is protected by the Federal Reserve System

D. It increases in value as the value of a business increases

Products Justification

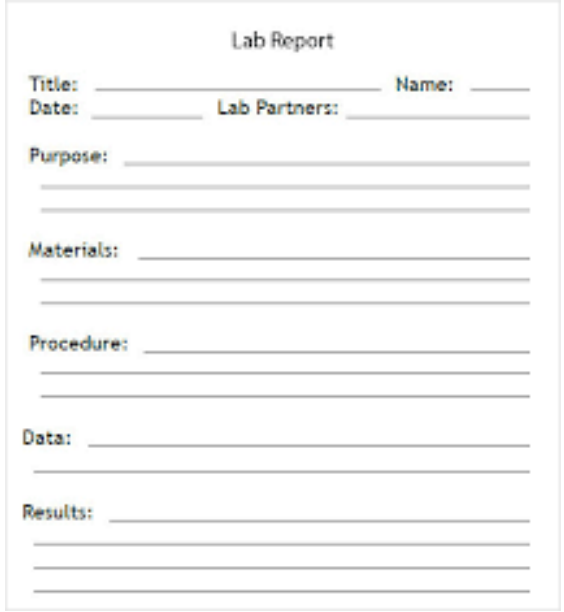
Q: **Lab Report** – Where in the lab/lab report did you find the biggest challenge? Please explain?

Q: **Portfolio** – Which entry most represents you and your best work? Why?

Display board

Spread sheet

Audio or video project


Lab Report

Title: _____ Name: _____

Date: _____ Lab Partners: _____

Purpose: _____

Materials: _____

Procedure: _____

Data: _____

Results: _____

Performances

Inferring

Q: Based on what you know about Joseph Hooker after playing our Civil War Game, how would he respond to John Pope being sent to Minnesota?

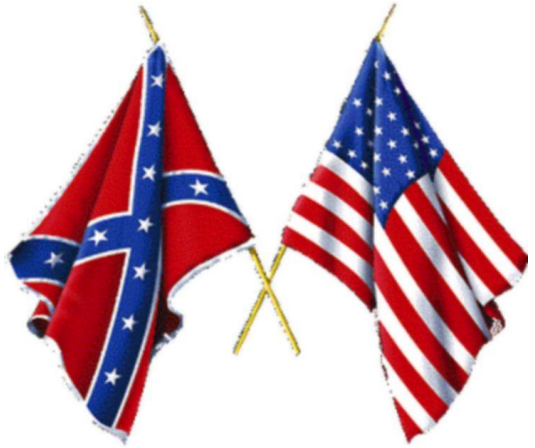
Science Experiment

Dramatic Reading

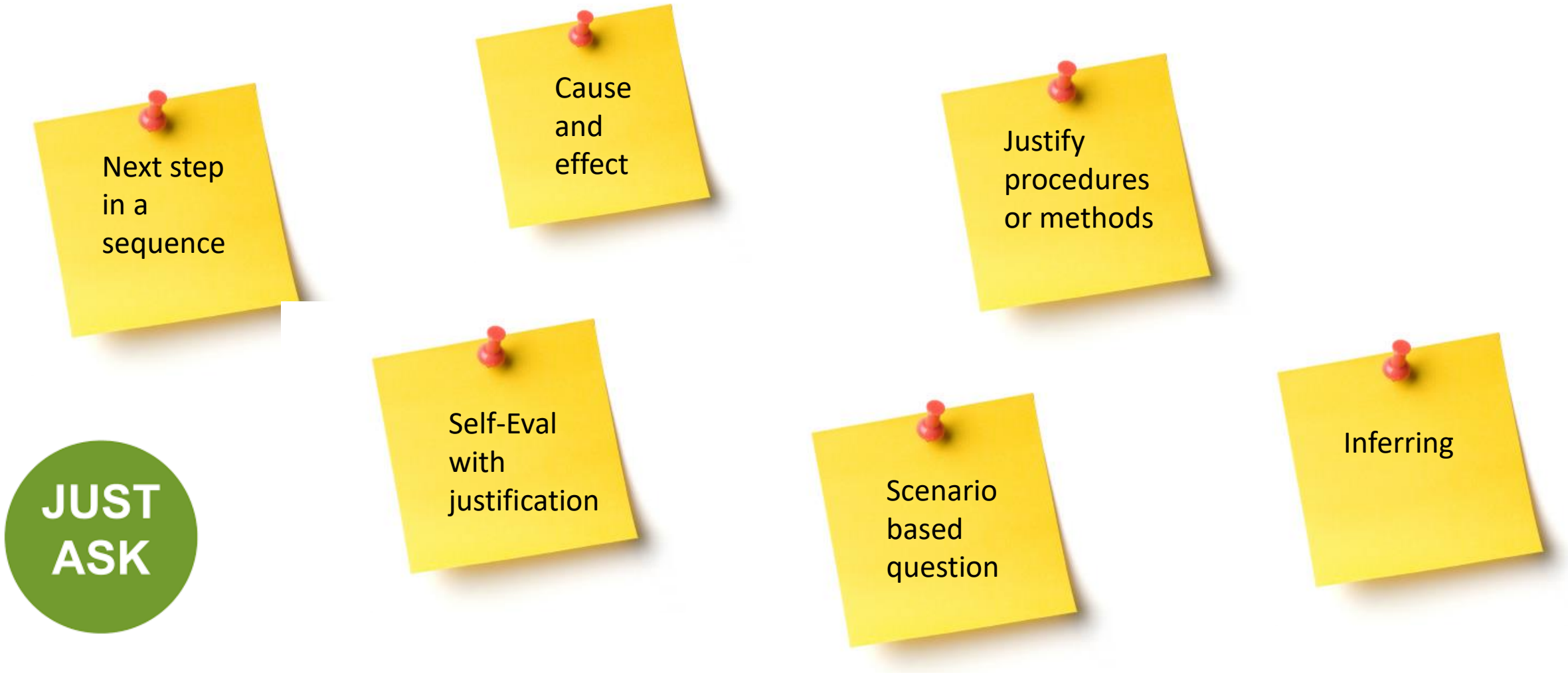
Musical Exhibition

Role Play

Historical Enactment



Before or After summative assessments



Formative Assessment

Commonly called **Checks for Understanding,**

these quick activities are added **throughout instruction** to help instructors identify what students know and what needs to be reinforced **(Gap Assessment),**

and to help students identify their own level of understanding. **(Illusions of Knowing)**

5 seconds – 1 minute	1 - 3 minutes	3 - 5 minutes	> 5 minutes
1. One-minute family a. Main point b. Most surprising concept c. Questions not answered d. Hypothetical test questions One-sentence or one-word summary 2. Hand signals a. Thumbs up/side/down b. Fist to 5 c. Confidence check 3. What's the best example? (least/most/biggest/etc.) 4. iClicker questions/polls 5. Application Cards 6. Examples/Non-Examples 7. 2 Things a. You learned today b. You learned yesterday c. Takeaways from today d. Connections to previous topics	1. Think-Write-Pair-Share 2. Think-Pair-Share 3. Turn questions into statements 4. 3-2-1 a. What you learned b. What you want to know more about c. What question you still have 5. Exit/Entrance Tickets 6. Directed Paraphrase 7. Rank responses 8. Muddiest Point –unclear concept 9. Praise-Question-Suggestion (PQS) 10. Pause and Share notes 11. Roll the Die (1) I want to remember (2) Something I learned (3) One word summary of learning (4) Concept that was a good review (5) I'm still confused about (6) Aha moment I had today	1. Index card summary 2. Questionnaires 3. Complete question stems 4. Interview your partner 5. What would (author) say/think if you asked…? 6. Group question to discuss 7. How and Why Q's 8. KWL a. What do you Know? b. What do you Want to know? c. What did you Learn? 9. Find the errors and fix them 10. Graphic Organizers 11. Matching or Sorting words/concepts 12. Self/Peer assessment 13. Traffic Light a. Red - Working on it b. Yellow - Almost there c. Green - Got it	1. Online quizzes/surveys 2. Learning log entry 3. Journal Entry 4. Student-generated questions 5. Concept mapping with sticky notes 6. Round-robin charts 7. 3-way summaries a. 10-15 words b. 30-50 words c. 75-100 words 8. Student/group demo 9. ABCD cards/Corners 10. Draw a timeline of events

Formative Assessment Strategies

Process focused

Creating

Prompt: Create an experiment in which you could determine the amount of fat in a potato chip. Identify the types of laboratory methods you would use. Include at least 2 lab tools you would use.

Solve a problem

Develop a case study

Create a sequence

Describe a process

5 seconds – 1 minute

Red-Yellow-Green

Q: Do you think you could define (concept)?

Q: Do you think you could explain (concept) to your peers?

Q: Could you come up with an example of (concept) if asked?

Q: How confident are you in your ability to create a 6-part lesson plan?

Q:It seemed like some of us struggled with part 3 of the lab today, how comfortable would you be explaining that part if asked?

5 seconds – 1 minute

3-2-1

3 things you learned (can apply to a previous topic)

2 things that surprised you (you question)

1 question you still have (are curious about)

Fist to 5 consensus building (0-5)

Q: Indicate your level of agreement with the following statement…

Best Example

Q: Which of the following is the best example of… Why do you think that?

1 – 3 minutes

One Minute “family”

-Main point

-Most surprising concept or detail

-Most confusing part of class

-Ask the Class

-Question for the professor

-One sentence summary

-One word summary

1 – 3 minutes

Ranking Question:

Q: Which of the following items is needed most for success during this exercise? (Add the Why question here)

Turn Questions into Statements

Q: What ethical questions have you been asked in a job interview?

Turn it around and ask your students to finish the statement:

One ethical question I can talk about in my practice so far is….

3 - 5 minutes

Where is the error?

Could use Target, Short Answer, or Multiple Choice

(fix it with a group, partner, on paper, on small white boards, or at the class whiteboard)

Clickers for formative assessment

3-2-1

One minute family

Ranking questions

Ask questions from the prompt

Green
Yellow
Red

Turn Questions into statements

Where is the error?

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