# *Assessing while learning*

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# [Mentimeter.com](Mentimeter.com)

- *[Math Ceiling](Math Ceiling)* by Ben Orlin


- Unintended Consequences
https://lanewalker2013.wordpress.com/

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# Formative Assessment

- Monitor student learning and provide ongoing feedback.
- It helps students identify their strengths and weaknesses.
- Helps teachers to monitor learners' progress and identify any challenges that students are facing as they learn, and act on it.
- May be spontaneous.

# Summative Assessments

- Evaluate student learning at the end of an instructional unit.

- Usually have high stakes.

- The teacher measures the student's performance using a standardized benchmark.

- Not spontaneous.

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"Good teaching is more a giving of right questions than a giving of right answers."
~ Josef Albers
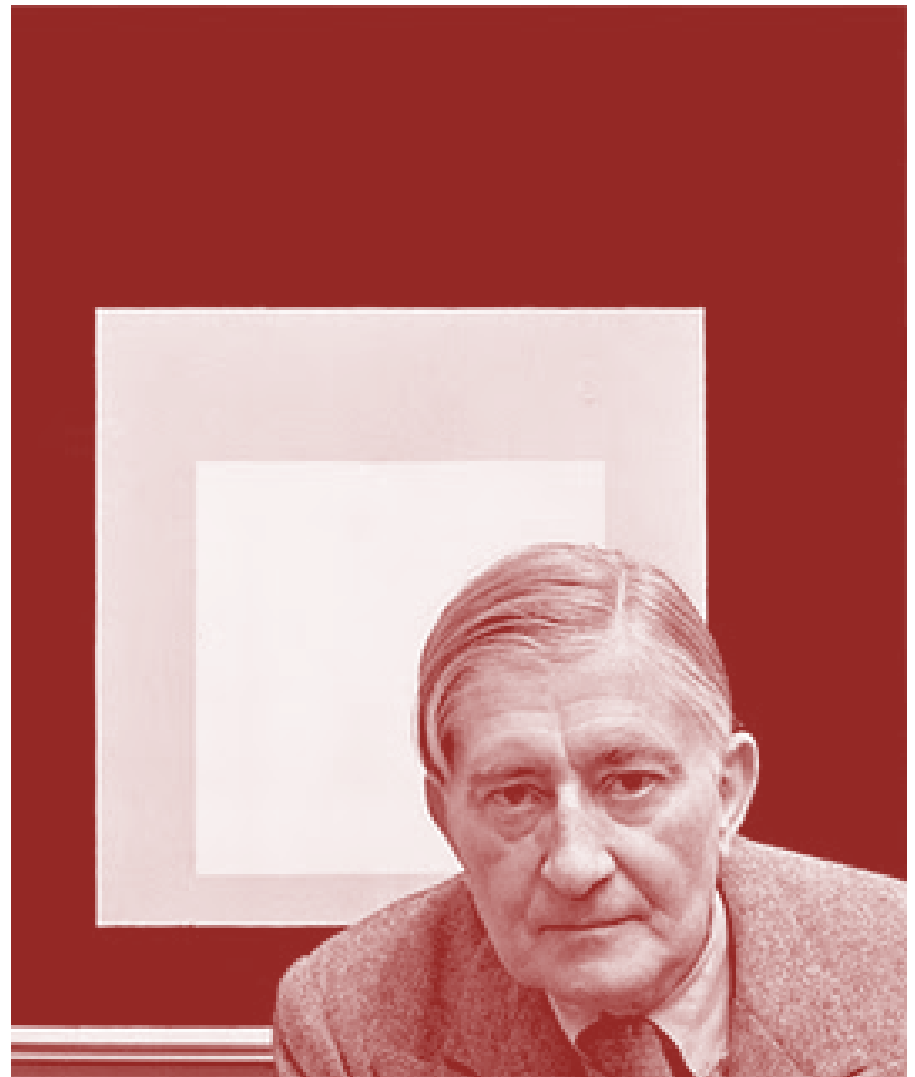
*Image: https://en.wikipedia.org/wiki/Josef_Albers*

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# Wait Time

- High school teachers had an average wait-time of just over one second.
- Elementary teachers averaged three seconds. (1974 studies)
- Studies from 1983 and 2009 show little change, if anything, they've gotten shorter.

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# Learning

- Learning consists of reinforcing the connections between neurons.
- The more ways something is learned, the more memory pathways are built.
- The more regions of the brain that store data about a subject, the more interconnection there is.
- Once information is successfully retrieved, it still needs to be reviewed between four and seven times to ensure retention.

# Frequent Feedback is Critical

- Recent imaging studies have shown that brain regions associated with motivation are more active in subjects who are learning tasks and receiving feedback than in subjects doing the same tasks with no feedback.
- Feedback is a key contributor to motivation.
- Effective feedback is timely.
- Good feedback is also specific.
- Positive feedback stimulates the prefrontal cortex to reflect on ways to improve.

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# *The person who thinks, learns.*

- Increase student engagement.
- Encourage them to try first and then ask for assistance.
- *If students can always get immediate help, they may become dependent and never learn to solve problems for themselves.*

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- Establish a climate where students feel they are treated fairly and feel free to express their opinions.
- Encourage students to make connections and be an active learner.
- Establish responsibility and accountability.
- Provide feedback.
- Educate students on how the brain learns.

# Neurotransmitters

- Brain chemicals that either permit signals to pass between neurons or inhibit them.

- The transmission slows down when the neurotransmitters are depleted by too much information traveling a circuit.

# Primacy-Recency Effect



**Retention During a Learning Episode**

(Sousa, 2011)

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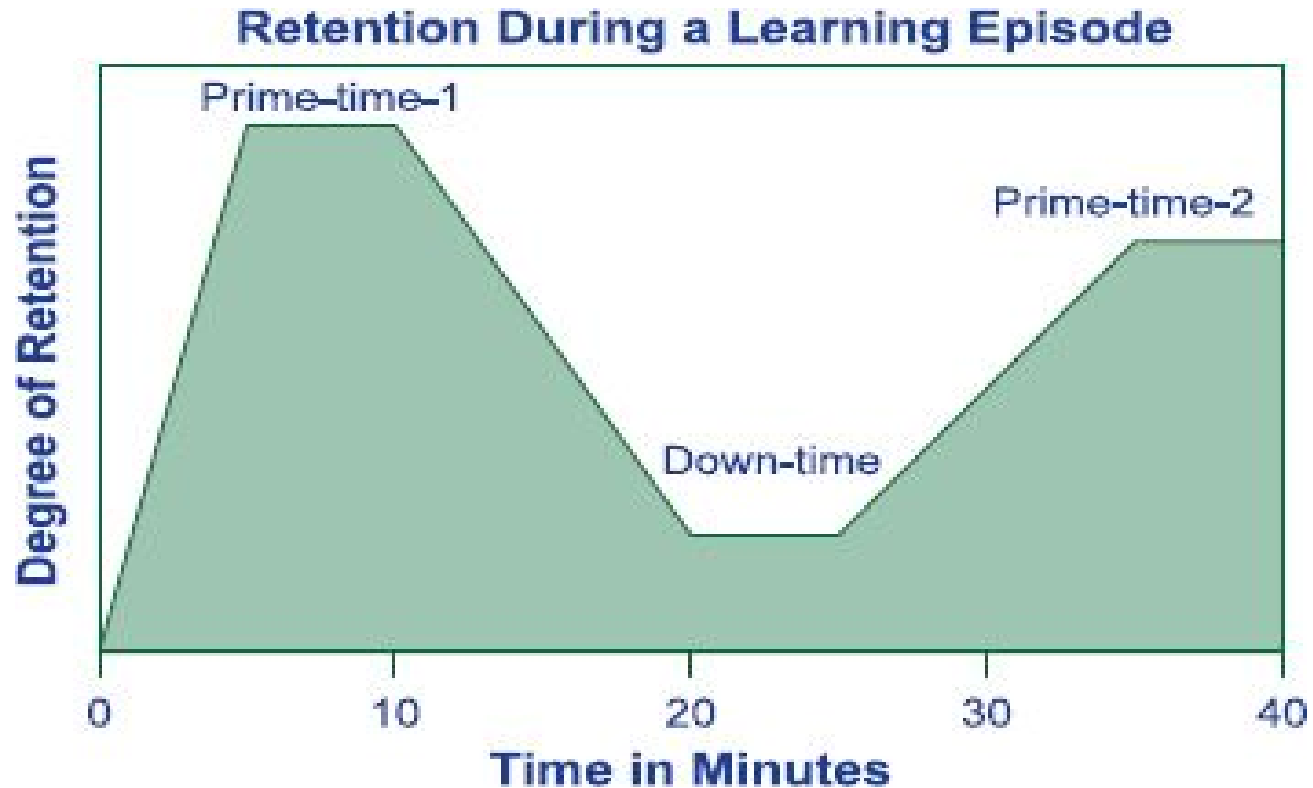
# [Mentimeter.com](Mentimeter.com)

- Two question slides and one paragraph slide free.

- A variety of question types or methods of collecting anonymous comments, questions, reactions, etc.

- Download [spreadsheet or .pdf](spreadsheet or .pdf) screen shots or results.

- 5 [quiz slides](quiz slides).  Timed responses.  Gives points for fastest response and correct response and lists the 'winners' in order.

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$$f(x) = ax^2 + bx + c$$

$$f(x) = a(x - h)^2 + k$$

The point (h, k) is the vertex.

If a > 0, the graph opens upward.

If a < 0, the graph opens downward.

# [Socrative.com](Socrative.com)

- Fitting2138

- Up to 5 saved quizzes
  - Can use [spreadsheet template](spreadsheet template) and import template but just alphanumeric characters upload

Can [export results](export results) to a .pdf.

Trig right triangles assessment [results](results)

# Socrative.com

- Exam 1 reflection
- MATH127C transformation
- Download results

# [Whiteboard.fi](Whiteboard.fi)

- Free account

- Instructor starts a new class code each log in and shares class code with students.

- Students select to 'join class' and enter code.

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# Whiteboard.fi

- Can copy images as background.
- Can have multiple pages.
- Can push instructor board to students.
- Students can upload image.

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# [Whiteboard.fi](Whiteboard.fi)

- In the year 2000, the human population of the world was approximately 6.08 billion.  Assume the annual rate of growth from 1900 onwards at 1.6%.  Using the exponential growth model, estimate the population of the world in the following years.

- a.  2030                              b.  1990

$$A(t) = A_0 e^{k \cdot t}$$

$$A(30) = (6.08) e^{(0.016) \cdot (30)}$$

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# [Whiteboard.fi](Whiteboard.fi)

- Students can use the white board to write on directly.

- Students can upload images from their phone/tablet.

- Instructor can [download results to a .pdf](download results to a .pdf) ([Another class](Another class) with students names omitted from example.)

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