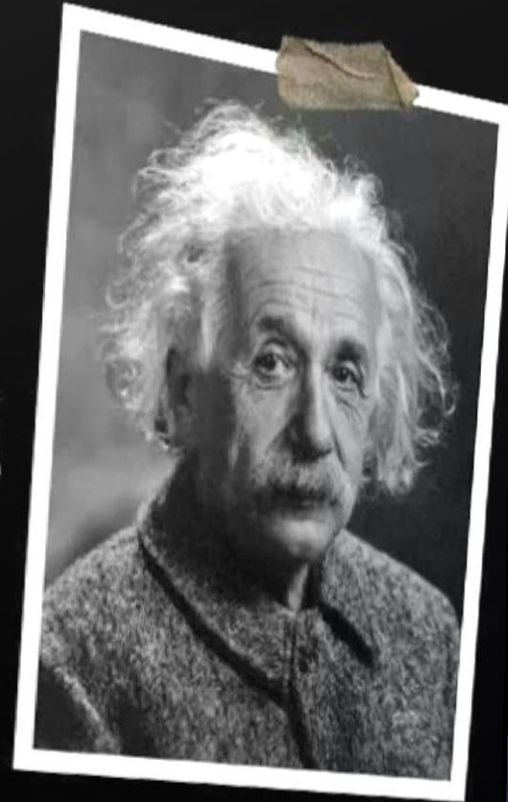


STOP ANSWERING QUESTIONS! ... Countering the Google Generation

{ Jon Ail & Tifiny Howard
{ SkyView Academy, Denver, CO



**"Education is not
the learning of
facts, but the
training of the mind
to think."
-Albert Einstein**



**HOW I SEE MATH WORD PROBLEMS:
"IF YOU HAVE 4 PENCILS AND 7 APPLES,
HOW MANY PANCAKES WILL FIT ON THE ROOF?
PURPLE. BECAUSE ALIENS DON'T WEAR HATS."**



**RESPECT YOUR
PARENTS.**

**THEY PASSED
SCHOOL
WITHOUT
GOOGLE.**



fb.com/MinionQuote

DESPICABLEMEMINIONS.ORG
DESPICABLEMEMINIONS2.ORG

**GOOGLE
WITHOUT**

STOP ANSWERING QUESTIONS! ... Countering the Google Generation

{ Jon Ail & Tifiny Howard
{ SkyView Academy, Denver, CO

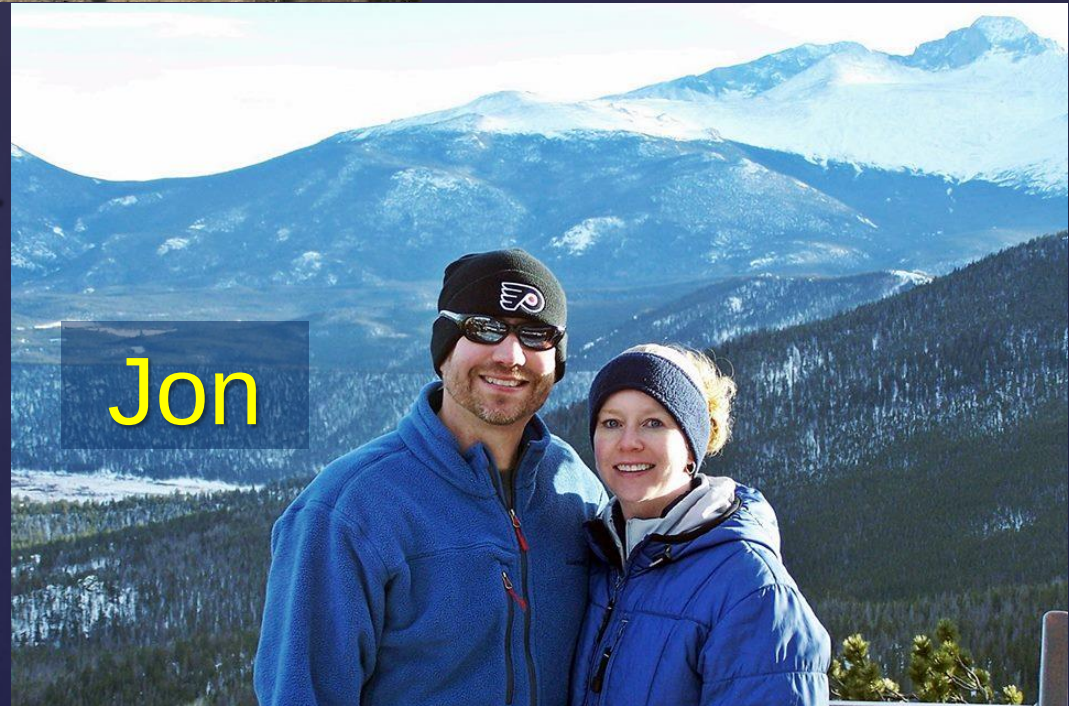




Who's Who?

Can you match
the following
facts with the
correct
presenter?

1. Black belt in MMA
2. Dated a cast member
from the Young & the
Restless
3. Sharpshooter
4. Triathlete

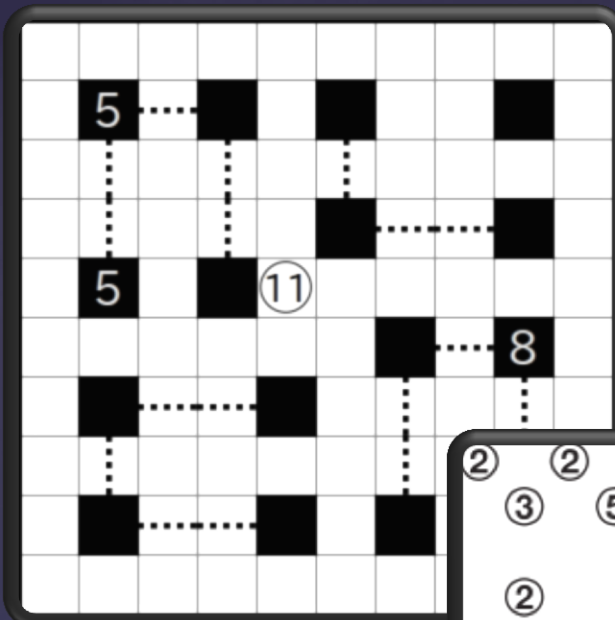


Could you teach an entire
math lesson by only
asking questions?





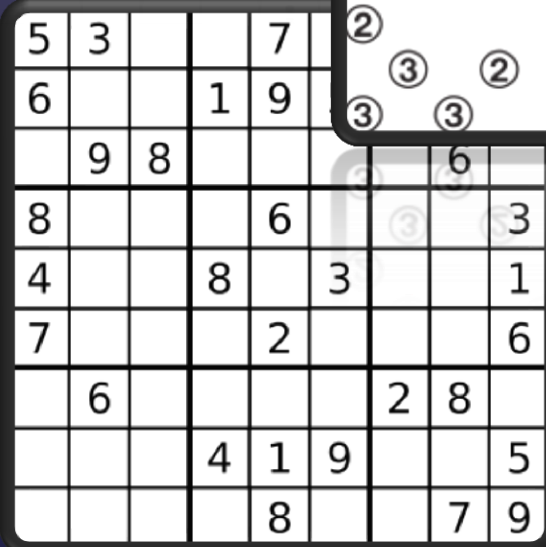
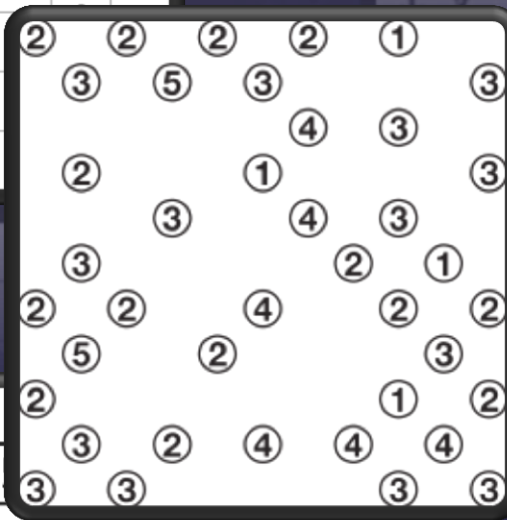
End-of-year gift from my students.



5-1

CRYPTOQUIP

BGC PRE DGFKDG, RTDSHAQ
TAJ SCJLPKE HAQBKFXCABO,
XTJ OPPA LC OCCSHAQ
TA PKOTA EPAPK



Crossword

Edited by Will Shortz

PUZZLE BY TIM CROCI

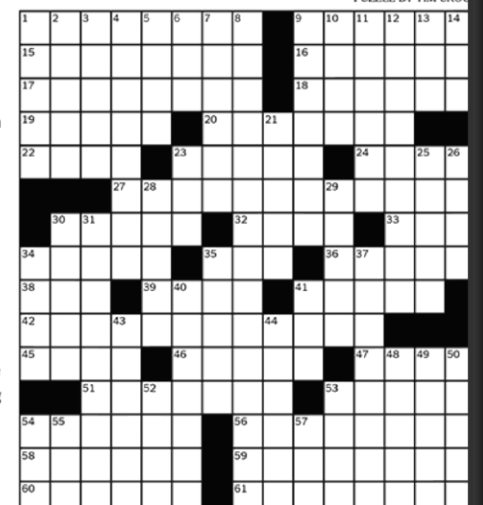
ACROSS

- 1 [If you get what I mean ...]
9 Person in upper sales?
5 All together
6 Title bandit in a Verdi work
7 "Ixnay"
8 See 19-Across
9 Took an 18-Across
10 Long-
2 Wife of Angel Clare, in literature
3 All together
4 Lundi ____
7 100% reliable
10 Like the Three Stooges
2 Stream past Memphis
3 Through
4 Worthy of being tossed
5 Shooting spot
6 Smart one?
8 N.C.A.A.'s Conference ____
9 Provider of some light fare
11 1,000 liters
12 1980s gangster sobriquet
15 "Oh, O.K."
16 Kind of pressure
17 Not be off
18 Kind of pressure
19 "Fingers crossed"

54 Ibsen title heroine
56 Danish ancestor
58 Yanks are part of it
59 Woody Allen film subjects
60 Be taken for
61 Complement from the chef?

DOWN

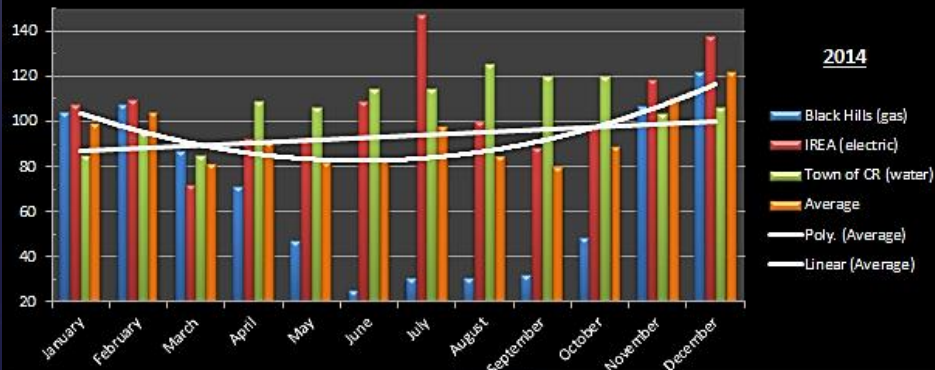
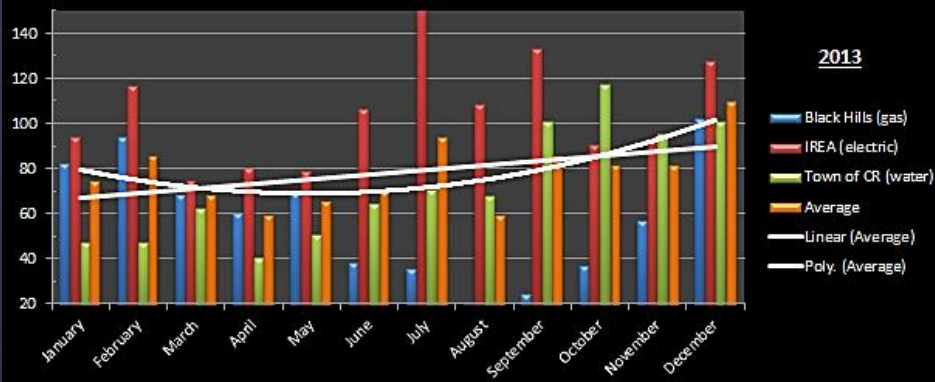
- 1 It's often tape-measured
2 Agave fiber
3 Edges
4 Hiker's purchase
5 Stopped working
6 Texter's P.O.V. preceder
7 Where Tara Lipinski upset Michelle Kwan
8 Has the material mastered
9 One with an important point?
10 Form of "sum"
11 Insect pupa sold as turtle food
12 Jeep alternative
13 Disney doe
14 Reason to do patchwork?
21 What a dodger might face
23 1982 Donald Fagen hit subtitled "What a Beautiful World"



Copyright © 2012 The New York Times. Reprinted with permission.

Puzzle No. 070

- 25 She asked "What IS an un-birthday present?"
26 Home to Ellsworth A.F.B.
28 Means of audio-visual connection
29 N.Z. was a member of it
30 Chinese martial arts, collectively
31 Many gastrointestinal tract residents
34 Extrudes
35 Floor exercise maneuver
37 Preventer of photographic glare
40 In some way
41 1960s org. revived in 2006
43 Newtons per ampere-meter
44 Scientific research centers?
48 Leotards cover them
49 Areas for some kneelers
50 "Oh, for goodness' sake!"
52 Neighbor of Apache Junction
53 Apropos of
54 Orthodontist's concern
55 Copying
57 One not going out with a bang?



Form 1040 Department of the Treasury - Internal Revenue Service (39) **2014**OMB No. 1545-0074 **RS Use Only** - Don't write or stamp in this space.

For the year Jan. 1-Dec. 31, 2013, or other tax year beginning , 2013, ending , 20

Your first name and initial Last name

If a joint return, spouse's first name and initial Last name

Home address (number and street). If you have a P.O. box, see instructions. Apt. no.

City, town or post office, state, and ZIP code. If you have a foreign address, also complete spaces below (see instructions).

Foreign country name Foreign province/state/country Foreign postal code

Filing Status

1 ☐ Single

2 ☐ Married filing jointly (even if only one had income)

3 ☐ Married filing separately. Enter spouse's SSN above and full name here.

4 ☐ Head of household (with qualifying person). (See instructions.) If the qualifying person is a child but not your dependent, enter the child's name here.

5 ☐ Qualifying widow(er) with dependent child

Exemptions

6a ☐ Yourself. If someone can claim you as a dependent, do not check box 6a.

b ☐ Spouse

c Dependents:

(1) First name	Last name	(2) Dependent's social security number	(3) Dependent's relationship to you	(4) ☐ If child under age 17 qualifying for child tax credit (see instructions)

If more than four dependents, see instructions and check here ☐

d Total number of exemptions claimed

Income

7 Wages, salaries, tips, etc. Attach Form(s) W-2

8a Taxable interest. Attach Schedule B if required

b Tax-exempt interest. Do not include on line 8a

9a Ordinary dividends. Attach Schedule B if required

b Qualified dividends

10 Taxable refunds, credits, or offsets of state and local income taxes

11 Alimony received

12 Business income or (loss). Attach Schedule C or C-EZ

13 Capital gain or (loss). Attach Schedule D if required. If not required, check here ☐

14 Other gains or (losses). Attach Form 4797

15a IRA distributions

16a Pensions and annuities

17 Rental real estate, royalties, partnerships, S corporations, trusts, etc. Attach Schedule E

18 Farm income or (loss). Attach Schedule F

19 Unemployment compensation

20a Social security benefits

21 Other income. List type and amount

22 Combine the amounts in the far right column for lines 7 through 21. This is your **total income**

Adjusted Gross Income

23 Educator expenses

24 Certain business expenses of reservists, performing artists, and fee-basis government officials. Attach Form 2106 or 2106-EZ

25 Health savings account deduction. Attach Form 8889

26 Moving expenses. Attach Form 3903

27 Deductible part of self-employment tax. Attach Schedule SE

28 Self-employed SEP, SIMPLE, and qualified plans

29 Self-employed health insurance deduction

30 Penalty on early withdrawal of savings

31a Alimony paid b Recipient's SSN

32 IRA deduction

33 Student loan interest deduction

34 Tuition and fees. Attach Form 8917

35 Domestic production activities deduction. Attach Form 8803

36 Add lines 23 through 35

37 Subtract line 36 from line 22. This is your **adjusted gross income**

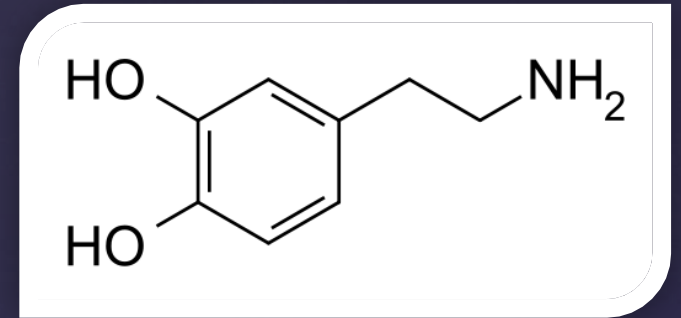
For Disclosure, Privacy Act, and Paperwork Reduction Act Notice, see separate instructions. Cat. No. 113208 Form 1040 (2013)



Google™

DOPAMINE

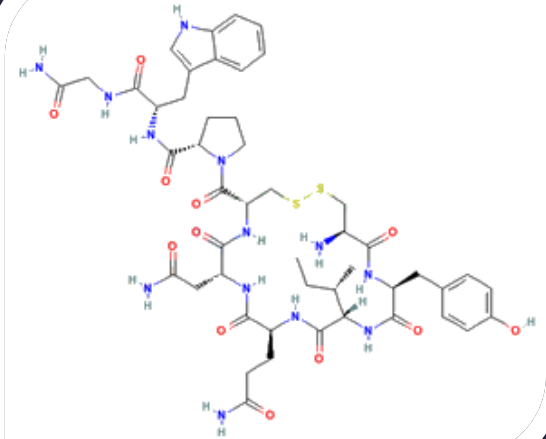
- Success → Dopamine
- Dopamine → Motivation
- Motivation → Success



How can I teach like Mr. Miyagi?

OXYTOCIN

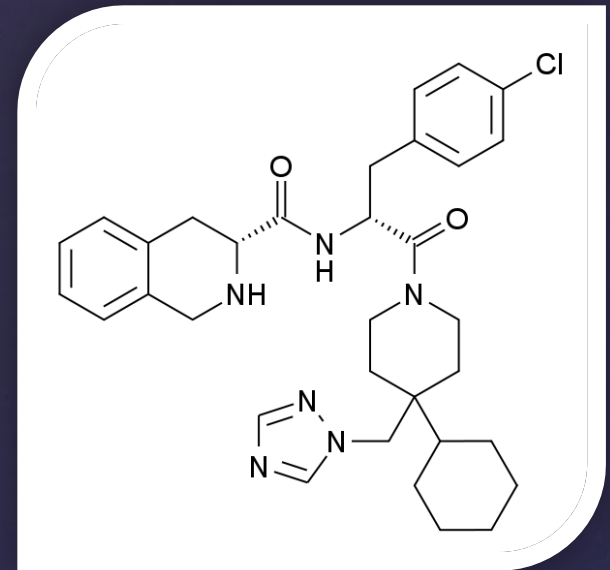
- Feeling of love and trust
- Built over time



***How do I
develop
Titan-like
relationships?***

ENDORPHIN

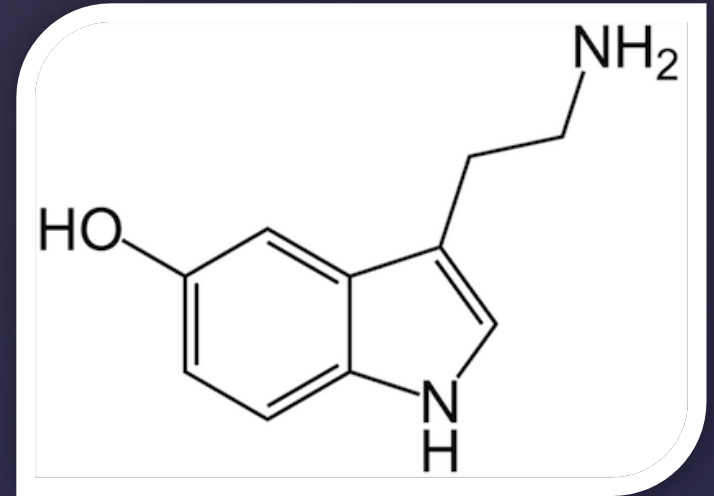
- Masks physical pain
- i.e. “runner’s high”



How do I get my students in the zone?

SEROTONIN

- Result of feeling important and “special”
- Product of confidence and self-certainty



How do I help my students feel like Sally Field?

Using nothin' but your noggin',
simplify $\sqrt{972}$
(use simplest radical form).



Using nothin' but your noggin',
simplify $\sqrt{972}$
(use simplest radical form).



$$18\sqrt{3}$$

The following problem was originally presented by IXL (booth #820):

Pythagoras and Archimedes each led a session at the NCTM conference. The next day, they looked at the attendance stats together and Archimedes' ego spiraled out of control. He bragged that he had 40 more teachers attend his session than Pythagoras did. He also boasted that overall, the number of teachers that attended at least one of the two sessions was four times the number that attended Pythagoras' session. Finally, he exulted in the fact that the number of teachers attending Pythagoras' session was only 16 more than the number that attended both sessions.

How many attended Archimedes' session?

Teach like Miyagi (dopamine)

1. Stop answering questions

- ✓ Make the students do the work—especially problem solving
- ✓ Help students to acknowledge and embrace struggle
- ✓ Use the Socratic Method to guide students
- ✓ Teach them to ask better questions



Teach like Miyagi (dopamine)

2. Provide appropriate scaffolding.

- ✓ Collect relevant, appropriate data—
use data teams and well-designed
assessments
- ✓ Differentiate instruction



Titan-like Relationships (oxytocin)

1. Build trust and respect with your students

- ✓ Work to develop meaningful, ongoing relationships with your students
- ✓ Greet your students at the door every day
- ✓ Consider “Capturing Kids Hearts” training





“Struggle” is a good thing.
- Jim Stigler, UCLA

Titan-like Relationships (oxytocin)

2. Build trust and respect among your students

- ✓ Begin class with “Good Things” / “Good News”
 - ✓ Use social contracts
 - ✓ Emphasize teamwork



In the Zone

1. Help students see the relevant life skills that they are developing

✓ Persistence/Perseverance

✓ Integrity

✓ Courage

✓ Commitment



When will we ever use this!?

Critical Thinking

Consintation

Knowledge

Effort

Ambition

Do not worry about your difficulties in mathematics, I assure you that mine are greater.
-Albert Einstein



Problem Solving

Patience

Guidence

Logic

Determination

Practice

Precision

WORK ETHIC



Strategy

Habit

CHANGE

Little mistakes Make a big difference

Perseverence

TEAMWORK!

Patience

WORK Ethic
Team work
Problem Solving
Indurance

ConCetration

Responsibility

You're Smart!! you
You're Awesome!! Can!!
COMMITMENT
The desire to succeed!! Go hard!!

Self-Control

Delegation
BE A LEADER



In the Zone

2. Use great anchor problems

- ✓ Use great questions to launch the school year...the unit...the lesson...the semester and keep coming back to them

3. Use intriguing math problems

- ✓ Are “double-stuffed” cookies really “double-stuffed”? Could we triple-stuff a cookie?
- ✓ Find great answers to the question *When are we ever ‘gonna use this stuff?*
- ✓ Have students pursue and present their own answers to this question

“You really like me!” (serotonin)

1. Build pride

- ✓ Have students regularly share their work
- ✓ Have students create instructional videos using Smart Recorder or Jing. Use them to create your school's own version of “Khan Academy”

2. Celebrate the wins

- ✓ As a class, affirm students who share their work
 - ✓ Display student work





Jon Ail, SkyView Academy, CO
Tifiny Howard, SkyView Academy, CO
jail@skyviewacademy.k12.co.us
thoward@skyviewacademy.k12.co.us

Sources



1. Graziano-Breuning, Loretta, PhD. *Meet Your Happy Chemicals*, 4th ed. Inner Mammal Institute: San Francisco, CA. 2012.
2. Harris, Bryan. *Creating a Classroom Culture That Supports the Common Core: Teaching Questioning, Conversation Techniques, and Other Essential Skills*. Routledge, 2014.
3. Hiebert, James, and Douglas A. Grouws. "The effects of classroom mathematics teaching on students' learning." *Second handbook of research on mathematics teaching and learning* 1 (2007): 371-404.
4. McNaught, Melissa D., and Douglas A. Grouws. "Learning Goals and Effective Mathematics Teaching: What Can We Learn From Research?." *Taiwan Journal of Mathematics Teachers* 10.6 (2007): 2-11.
5. Richland, Lindsey E., James W. Stigler, and Keith J. Holyoak. "Teaching the conceptual structure of mathematics." *Educational Psychologist* 47.3 (2012): 189-203.
6. Salamone, John D. et al. *The Mysterious Motivational Functions of Mesolimbic Dopamine*. Neuron, 76(3):470-485. November 2012.
7. Simpson, Amber, et al. "A Tool for Rethinking Teachers' Questioning." *Mathematics Teaching in the Middle School* 20.5 (2015): 294-302.
8. Sinek, Simon. *Leaders Eat Last: Why Some Teams Pull Together and Others Don't*. Portfolio/Penguin: New York, NY. 2014.
9. Treadway, Michael T. et al. *Dopaminergic Mechanisms of Individual Differences in Human Effort-Based Decision-Making*. The Journal of Neuroscience, 32(18):6170-6176. May 2012.
10. Warshauer, Hiroko K. "Strategies to Support Productive Struggle." *Mathematics Teaching in the Middle School* 20.7 (2015): 390-393.
11. Warshauer, Hiroko Kawaguchi. "The role of productive struggle in teaching and learning middle school mathematics." (2011).
12. Willis, Judy, M.D. *Learning to Love Math: Teaching Strategies That Change Student Attitudes and Get Results*. ASCD: Alexandria, VA. 2010.