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Brain Research

http://brainrules.net/

Brain Rules- Book by John Medina- offers insight into how to teach the 21st century child taking into account patterns of the brain.

Factors that enhance thinking and innovation:

1. Exercise- people think more clearly while moving. Exercise boosts brain power

2. Survival- Our ability to solve problems, learn from mistakes, and create alliances help us survive. Emotional intelligence (relationships) is our strongest survival tool.

3. Wiring- Every brain is wired differently. We need to take this into account by offering multiple pathways for student learning to occur.

4. Attention- the brain is not capable of multi-tasking. Students are preconditioned to multi-task, especially when it comes to using apps. We need to help students learn to focus on one thing at a time to encourage higher order thinking.

5. Short term memory- importance of repetition for students to master concepts

6. Long term memory- repeat exposure to information in specifically time intervals

7. Sleep- sleep well, think well

8. Stress- the brain is not designed to deal with long term stress. Reducing stress increases performance

7. Sensory Integration- stimulating more of the senses leads to more productive learning

8. Vision- vision trumps all other senses. Text-based information is inefficient. People remember pictures way more than words.

9. Gender- male and female brains are different.

10. Exploration- we are powerful and natural explorers. Allowing time for exploration in class can lead to deep application of learning.

The New Learning Environment

Co-Lab
Teacher desk is now a conference table. Student desks are replaced by tables.

Makerspace
Learning centers replace rows of desks. Each learning center has a different focus
White board paint
Chairs on wheels
White board all around the room results in students moving more
Sharp decline in discipline problems in these classrooms

Ways in which students can communicate proof of learning using digital tools

1. Tell a story
2. Make a movie or song
3. An interactive poster
4. Draw, paint, model

Featured Digital Tools

1. Kahoot
Use a common protocol for student names
Great real time formative assessment tool
Every student plays from his/her device

2. Notability
Encourage students to use this instead of typing notes- brain science shows that retention is better when students write
Can be used as a cartoon sketching app

3. Padlet
Create a virtual corkboard
Students can post freely, or can only post through your approval
Weblinks, text, paragraphs
Generates a QR code- students take a picture and can easily access it at home
Leave the QR code on a bulletin board for parents to access at home
Example of an application: a board about whatever book you are reading
Homework help padlet board- students help each other

4. Book Creator
Create interactive PDF books with video, audio, text
Used to replace student portfolios

5. Explain Everything
Screen casting/ screen recording app
Students can use to create a video that explains a concept, or the teacher can create a video for the class (centers of flipped classroom)

6. Mathspace
Handwritten math converts to text
Forces students to go through each step of the problem
If the student runs into a problem, there is a hint button
When student asks for hint, it takes away .1 points
Set up with an outline by standards/ skills
3rd grade Math- Algebra 2
Works best on a tablet
If you create a custom assessment and the student starts struggling, it will adapt to where student is and build them back up

7. Sketchbook Pro, Keynote, & Showbie: Can be used together
Sketchbook pro is a drawing app
Keynote is used to create collaborative presentations
Showbie allows teacher and student to interact over work- teacher posts and assignment, can comment, photos, videos, documents can all be shared

8. Glogster
Can be used for field trips for students to create virtual bulletin boards while on the field trip

9. Stop motion video applications
Students can create stop motion videos using legos and one of these free apps
Just google "free stop motion video applications"
One example: iStopmotion

10. Soundtrap
You can also use this to make music videos, changing the lyrics of a song to meet the content you are covering.
Example: The song from frozen changed to reflect information about the Odyssey

11. Pasco Bluetooth science instruments
Helpful in guiding students through labs
K-12 curriculum

12. Procreate
The language of math
Can be used for art/ math integration
Students write sentences explaining mathematical concepts and create a drawing with their sentences

13. Mastery Connect
Student.masteryconnect.com
Online testing platform service- multiple choice,
School account is a lot more affordable than teacher accounts

14. Classkick.com
Teacher uploads a worksheet/ assignment
Teacher can watch all students working on the assignment at the same time using the teacher account.
Students can raise their hands virtually or ask the teacher to check their work virtually
Students can help each other anonymously
Teacher receives the report of which students helped which students
You create a roster for students once, and then they always sign in using the same name
Each time you create a new assignment, a new class code is assigned
You can export student work to a PDF and create individual files for each student. If you use this throughout the year, you will have the progression of one student's work over the course of the year.

15. Socrative
Allows teachers to assess students using pre-created quizzes or quizzes they create on their own. Teachers receive instant data that they can use to determine how to proceed with the lesson.
Reports available at the class, individual student, or question level.
Share a unique code to ask students to join a classroom
Build student by in by turning on the "space race" feature
Use the mastery tracker to track student progress in relation to core standards over time

16. Nearpod
Teacher paced presentation
Teacher based licenses
Works well with spotty internet because it downloads the media to use offline
Recommended to start with a warm up if you have a media rich presentation
Polling slide- ask a question of the whole class and get feedback
Slideshow- insert multiple images or slides and students can navigate them on their own
Open ended question- ask students to do a short paragraph response for class discussion
Virtual field trip: You can use the video feature to transport students around the world
3D images: students can spin images around and zoom in to explore.
Fill in the blank- teacher copies and pastes a body of work, clicks on the words to remove, student drops and clicks words to fill in
Matching pairs- create photos and word matching games

17. Literably
Assesses reading fluency and comprehension
Students can read into a microphone
Tells you word fluency and if the student self-corrected
Works on any device with a microphone
Also works on ipad with an app
Gives you DRA, ATOS, and Lexile measures
K-7 reading
Can be used with ELL students
Actual people that correct the student work

18. Front Row
Frontrowed.com
Math, ELA, Social Studies, and Science
One integrated dashboard- good for self-contained teachers
Teacher can assign up to 30 assignments for free
One free adaptive practice
Inquiry-based lessons- teacher resources already available

Encouraging faculty to use technology

1. Campfires
Find the time once a month to come together as learning groups, and have time to share what you are doing with technology in your classroom. This allows us to learn different apps together.

2. Faculty Challenge
Student Centered Learning
How are you using 2 applications during the year to promote student centered learning and work cross-curricularly?
Faculty filled out a form and won gift cards for their work

3. Continuum of teaching with technology
Survival→ Mastery → Impact→ Innovation
The progression from survival to innovation can happen in about 4 years

The expert in anything was once a beginner.