

Amiot, D.; Wells, T.; Johnson, G.L.; Vasquez, A.; Kazan, N.
Dysregulation, Discipline, Dyslexia, Oh My

Wearable Technologies for Active Learning and Sensory Regulation with Dignity

ASU-NERC PARTNERSHIP FOR NEURODIVERSE
COMPUTATIONAL THINKING AND TELEMATIC
EMBODIED LEARNING



WHO? TEACHERS OF
NEURODIVERSE MIDDLE
SCHOOL STUDENTS

WHAT? CO-DESIGN
ACCESSIBLE COMPUTER SCIENCE-
INFORMED CURRICULUM

HOW? BUILD, PLAY & PERFORM
WEARABLE DIGITAL MUSICAL
INSTRUMENTS



Purpose/goals of session



Explore how technologies are being used to promote active, equitable, and research informed learning with autistic students

Agenda

Who we are

What we believe

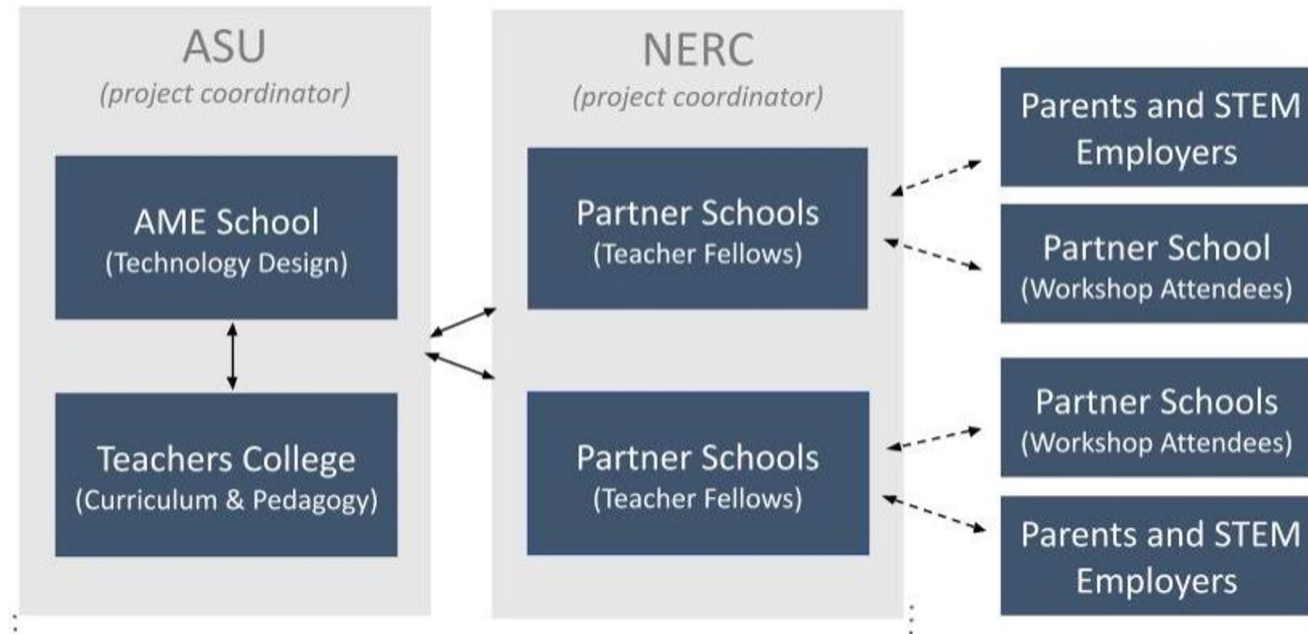
What we are doing

How it incorporates HLPs

What else there is to explore



ASU-NERC Partnership



School of Arts, Media and Engineering

ASU Herberger Institute for
Design and the Arts
Arizona State University



ASU Mary Lou Fulton
Teachers College
Arizona State University

Presenting Today



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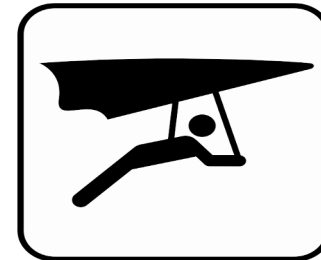
Mirka Koro
Professor & Director
of Doctoral Studies
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Project - Research Practice Partnership

- Exploring computational thought as it intersects with neurodiversity and the arts.
- Working with embodied technologies and constructivist pedagogy
- Striving to build rich, inclusive computational learning experiences for all students



Co-designing



Pilot Testing



Scaling



National Science Foundation
WHERE DISCOVERIES BEGIN

Partnership



Science Prep Academy



Sacaton Middle School

And additional partners coming soon!



Core Principles

Neurodiversity is fundamental to inclusive education

- Independence → Interdependence

Creative expression boosts social and emotional wellbeing

- Linearity → Creativity

Embodied movement is central to understanding

- Cognitivism → Embodiment

Neurodiversity

Everyone has a 'differently-wired' brain and their own unique way of thinking, interacting and experiencing the world.

Neurological variances should be recognized and respected just like any other human variation, such as gender, race or sexual orientation.

(Silberman, 2016)



Active Learning

- *Active Learning Theory* refers to the ability for learners to construct or build their own understanding of concepts or topics
- Active learning is derived from two basic assumptions
 1. learning is by nature an active endeavor
 2. that different people learn in different ways

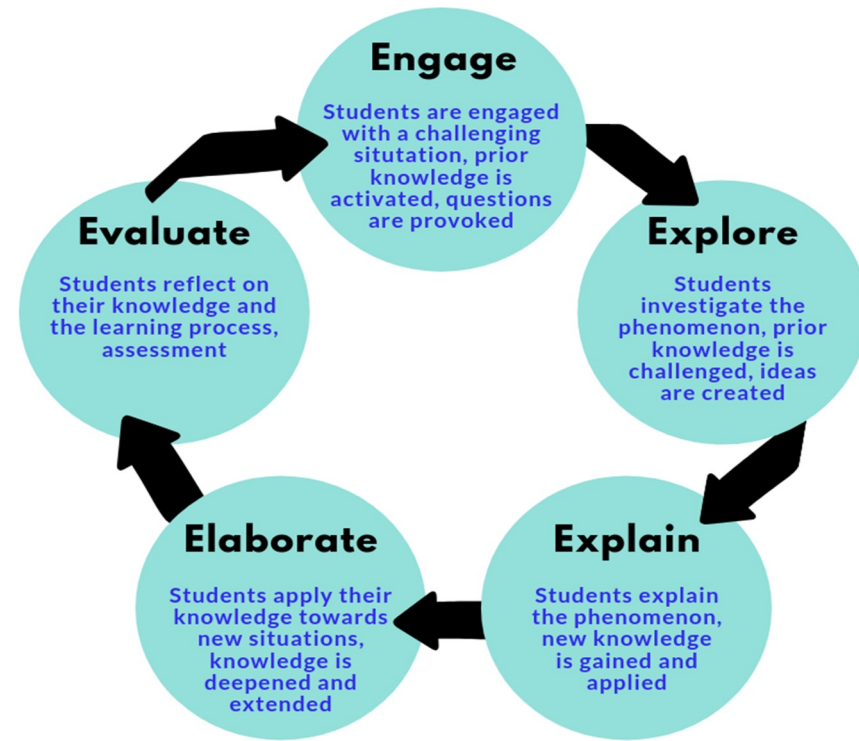




Active Learning

Inquiry based (5E lessons)

- How people learn
- Explore before explain
- Concept then procedure/skill



Social Emotional Learning



Collaborative for Academic, Social, and Emotional Learning's (CASEL) five dimensions of SEL

Strengths of SEL

- Inquiry/play and SEL
- Intersection of culture/race, disability and trauma

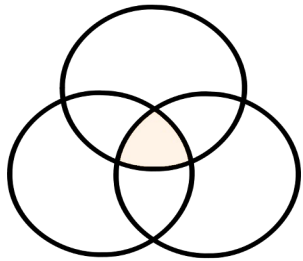
Discipline



Democratic practices

- Co-created classroom expectations and consequences.
- Shared maintenance of expectations
- Conflict resolution over punitive discipline

Discipline



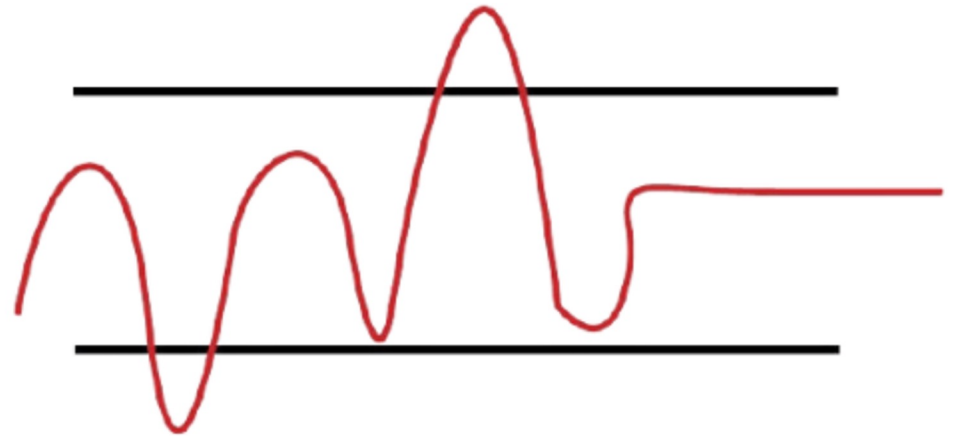
Positive Behavior Intervention Supports

- Systems-based
 - School/class-wide approach
- Practices
 - Draw on research-based interventions
- Data-informed
 - Monitor, evaluate, and revise practices

Dysregulation

Window of Tolerance

When our body goes above or below our tolerance level for emotions, we automatically enter flight, fight or freeze.



Window of Tolerance



Flight, fight, freeze

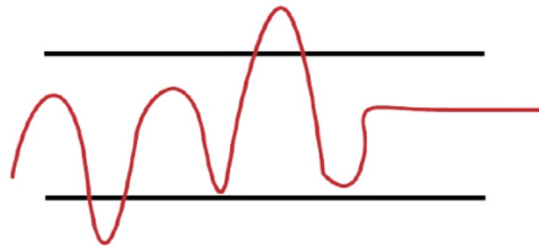
automatic, innate response

protect from threats

Triggered without life threatening situation

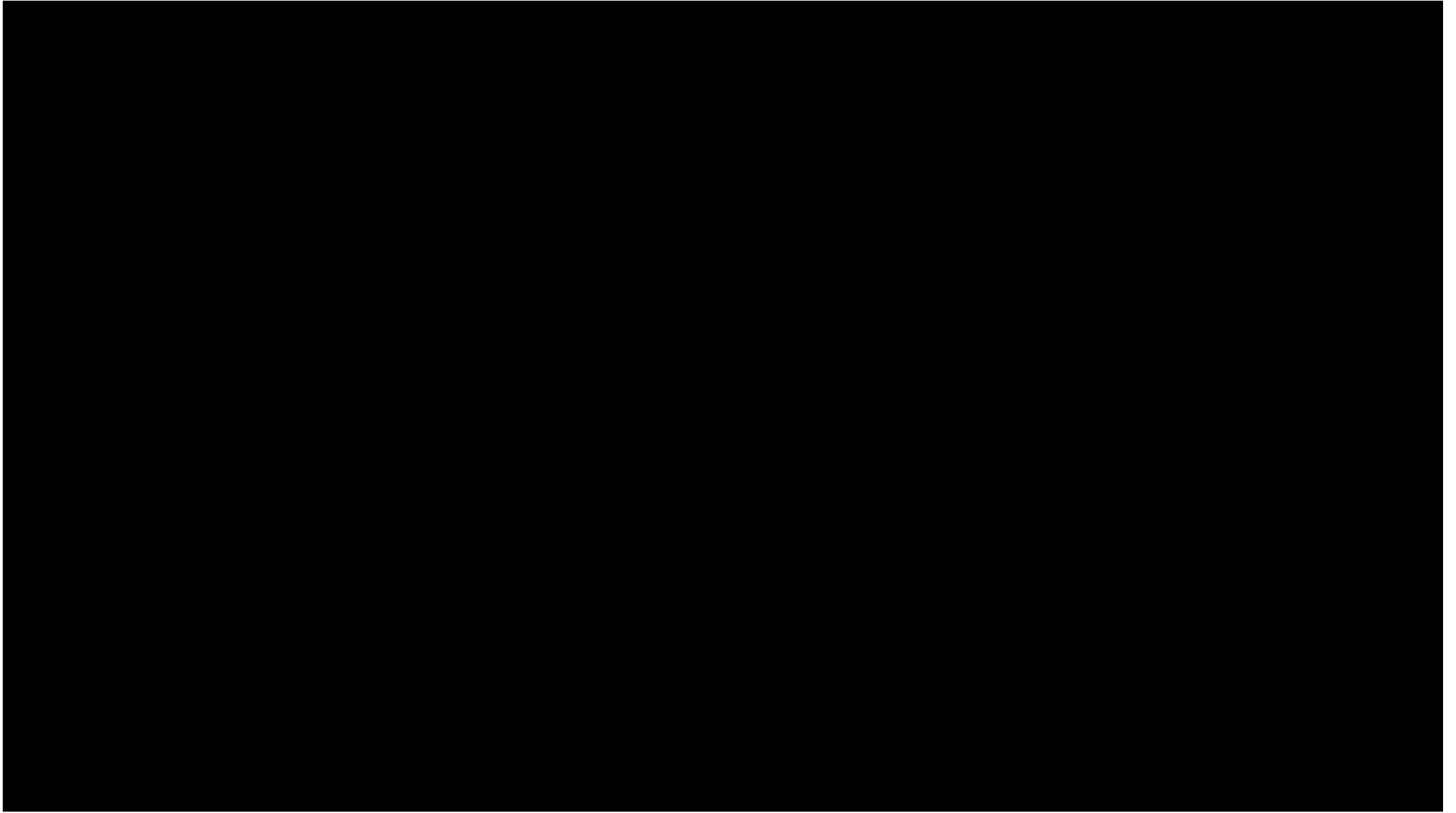
Ability to think, speak and plan are affected

Window of Tolerance



Neurotypical people typically stay within their window of tolerance throughout the day.

Neurodivergent people, especially autistic people, are more likely to be at the top of their window of tolerance and be more likely to be triggered into dysregulation, meltdowns and shutdowns.



HLP Connections

HLP 18: USE STRATEGIES TO PROMOTE ACTIVE STUDENT ENGAGEMENT

Inquiry-based lessons
5E lesson plans
Exploration before
explanation
Moving-thinking



HLP 19: USE ASSISTIVE AND INSTRUCTIONAL TECHNOLOGIES

M5Stick Device
Musical Instruments
Computational thinking
Co-design (teachers,
students, University)

HLP Connections

HLP 12: SYSTEMATICALLY DESIGN INSTRUCTION TOWARD A SPECIFIC LEARNING GOAL

5E lesson plan
Explore, explain, elaborate
Content standards
Computational Thinking concepts
Performance-based assessment

HLP 15: PROVIDE SCAFFOLDED SUPPORTS

Explicit teaching for use of tools
Multiple entry points
Partners and cooperative groups

HLP Connections

HLP 22: PROVIDE POSITIVE AND CONSTRUCTIVE FEEDBACK TO GUIDE STUDENTS' LEARNING AND BEHAVIOR.

Accessible, positive supports
Student-centered, co-created
environments
Engagement
Multiple entry points

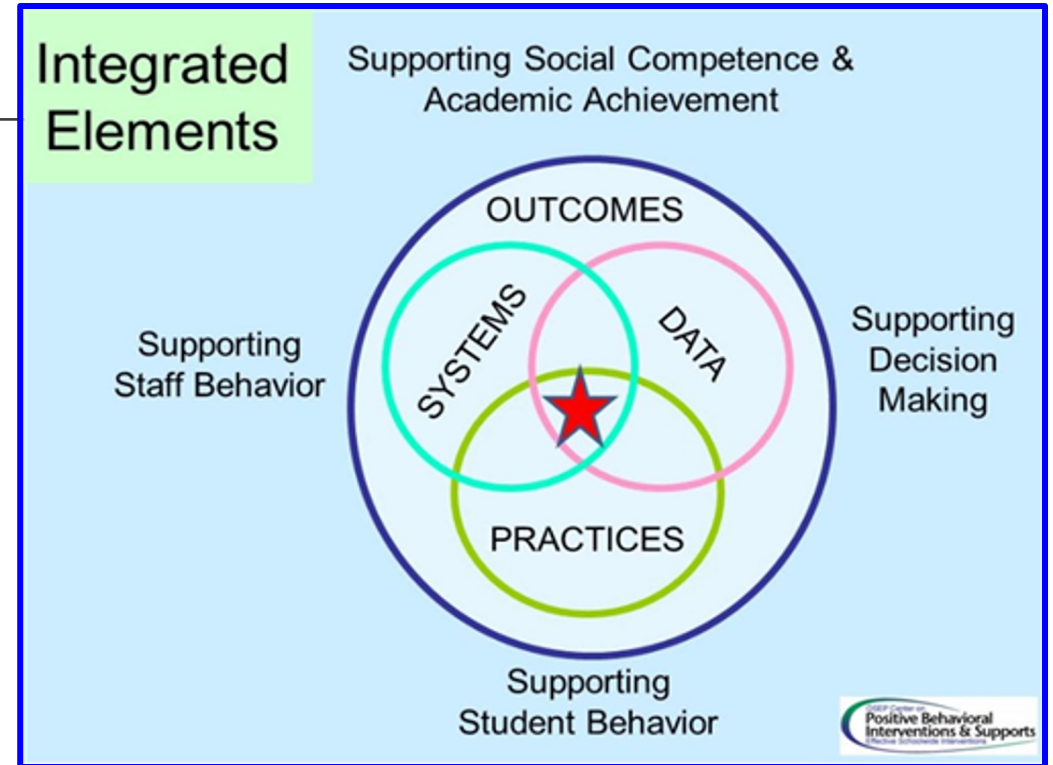


PBIS - Positive Behavior Intervention & Supports

The key attributes of PBS include

- preventive activities
- data-based decision making
- problem solving orientation.

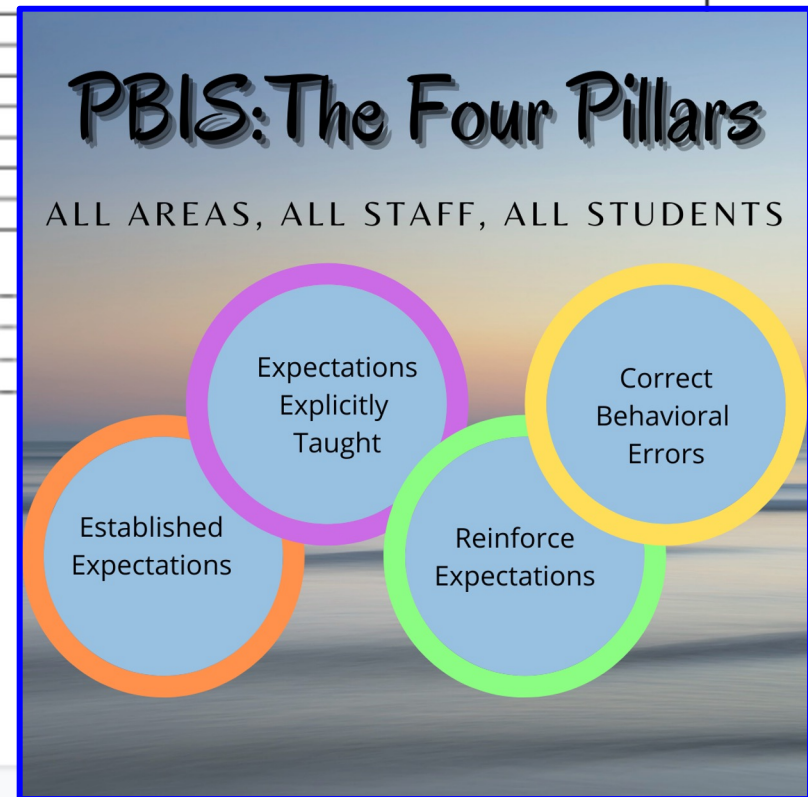
By drawing from other disciplines, we can enhance its effectiveness in integrated settings.



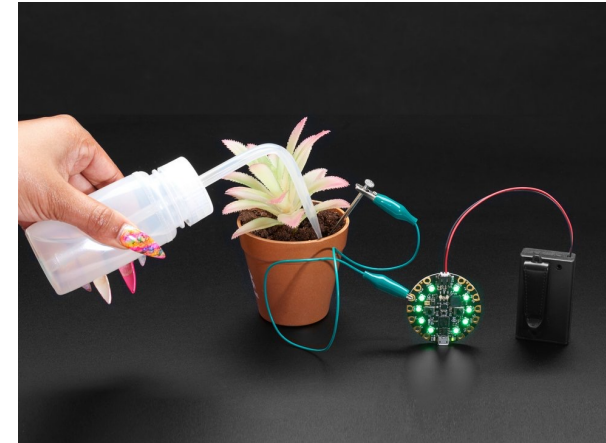
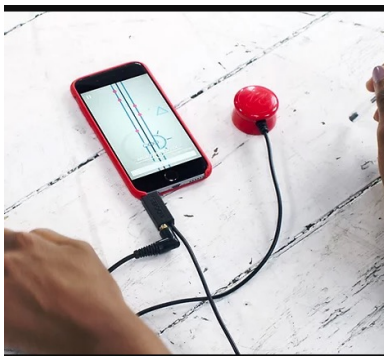
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(Horner, 2000; Kincaid, Dunlap, Kern, et al. 2016; Lewis & Sugai, 1999; Sugai et al., 2000; Weigle, 1997)

School Year 2021-22		Daily Point Sheet					
		Name: _____ Students may earn up to 50 points daily.			Date: _____		
		P	R	I	D	E	Comments:
Mindfulness	9:00 - 9:15						
Period 1	9:15 - 10:00						
Snack	10:00 - 10:10						
Period 2	10:10 - 10:55						
Period 3	10:55 - 11:40						
Lunch	11:40 - 12:15						
Period 4	12:15 - 1:00						
Period 5	1:00 - 1:45						
Period 6	1:45 - 2:30						
Period 7	2:30 - 3:15						
Upcoming Event Schedule: Parent Signature & Comments: _____ _____ _____							
FUN FRIDAY REWARDS: If you have 45 or more points, congrats you made your day! Weekly Level Break Down: Make your day 4 or more days per week= Level 3 (Activity Clubs and Social Hall) Make your day 3 or more days per week= Level 2 (Activity Clubs) Make your day 2 or fewer days per week= Level 1 (Enrichment and make-up work) *Remember to follow PRIDE everyday to earn your rewards!							



More Active Learning Ideas



More Active Learning Ideas

- ODD Ball <https://oddballism.com/collections>
- Otamaphone https://www.amazon.com/Otamatone-%E6%98%8E%E5%92%8C-Electricals-otamato-n-White/dp/B07QXW6K54/ref=pd_lpo_2?pd_rd_i=B07QXW6K54&psc=1
- Mogeess <https://www.mogeess.co.uk/>
- Circuit Playground Express
https://www.adafruit.com/product/4060?gclid=Cj0KCQiAkZKNBhDiARIsAPsk0WjKHv1feeFf8RIEmKDYEt3cK5nn7D5r3j1x-2N9AtHGHdQKlz1STnEaAgYSEALw_wcB
- Example approachable programming environment called <https://www.microsoft.com/en-us/makecode> (game environments, chill down spaces where lights or sound are animated by touch or coordinated touch)

SPECIAL EDUCATION TEACHER FELLOWSHIP (AUTISTIC STUDENTS)



Teachers selected receive:

- \$3000 stipend
- Funded Conference (Travel & Hotel)
- Professional Development
- classroom Resources

For more information, please email
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