Twist and Shout!

How physical movement can enhance the practice of STEM teaching
Your Brain on Exercise

- Exercise causes the heart to pump more oxygen-rich blood to the brain.
- Exercise stimulates the brain plasticity by stimulating growth of new connections between neurons.
- Exercise causes an increase in “feel good” neurotransmitters, as well as a decrease in stress hormones.
What the Data Says

• Positive correlations between movement in the classroom and:
  – Feelings of self-worth, hope
  – Development of social skills
  – Content retention*

• Decreased movement leads to an underdeveloped vestibular system, a key characteristic of those with ADs

• A decrease in number of parks, playground equipment, as well as P.E. in schools may lead to increase in ADs.

*This is true for students of ALL ages, including adults!
Explicit vs. Implicit
Incorporations of Movement into Curriculum

- **Explicit**: Letting students in on the fact that you’re incorporating movement into the lesson as you’re carrying it out, and why.

- **Implicit**: Using physical movement without pointing it out; just as a natural component of the lesson that happens to make kids move!
Preschool Science Camps

Implicit Use of Activity:
- Changing learning environments often
  □ Active Transitions: atom walk, photon walk
- Song and dance revolving around content

Explicit Use of Activity:
- Morning routine/exercise “experts”
- Fast jumping jacks
- Energy checks
Elementary Camps

Explicit Activity:
- Morning stretches
- Jumping jack intermissions
- Tag and other games during lunch/snack breaks

Implicit Activity:
- Running the length of cow’s small intestine (110 ft.)
- Resting vs. active heart rate
- Lung capacity with ping-pong balls
Middle School Camps

Explicit Incorporation of Movement:
- Morning sanity stretches
- Sportsology Camp
- Cycling Science Camp
- Tag games + tree climbing

Implicit Incorporation of Movement:
- Forensics: Spread-out crime scene
- NASA: SCUBA Micro-Gravity simulation, walking to rocket-launch and other sites
Resources Used

- Blakemore, C. Movement is essential to learning, Journal of Physical Science, 74 (9).
- Spielmann, C., and Pearce, K. The Effects of Movement Based Learning on Student Achievement in the Elementary School Classroom.
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