Active Insight: Evidence in Action

Tip #805

Active Science, Technology, Engineering and Mathematics Through Movement Participation

Overview

Science, Technology, Engineering and Mathematics (STEM) come to life when students are challenged to **design, build, test and improve solutions. Movement can add a practical dimension** to STEM learning, helping students investigate ideas, collect data, solve problems and explore how concepts work in action. From **measuring distances** and analysing results to **designing games** and **engineering challenges**, movement can provide **authentic contexts** where STEM thinking is visible, purposeful and **connected to real-world applications.**

Key Teaching Ideas

Many STEM concepts lend themselves to **hands-on investigation, experimentation and design thinking.** Students can **measure, compare, calculate, test, modify and refine ideas** while working through movement challenges. **Data collection, engineering design processes, mathematical reasoning and scientific thinking** can all be embedded within **practical tasks.** Real-world problems, collaborative challenges and student-designed solutions can help make STEM learning relevant, e**ngaging and connected to everyday experiences.**

Practical Application

- **Design a challenge.** Eg: Students create, test and refine a game, obstacle course or movement task based on specific design criteria.
- **Collect and analyse data.** Eg: Record times, distances, scores or results and use the information to identify patterns and draw conclusions.
- **Apply engineering thinking.** Eg: Build, test and improve equipment, targets or structures using available materials.
- **Use mathematics in action.** Eg: Estimate, measure, calculate and compare results during movement-based investigations.

Next Steps

Explore Active Education Australia Resources for practical ways to integrate Science, Technology, Engineering and Mathematics through movement and active learning.

The Physical Literacy Framework is informed by the Australian Physical Literacy Framework (Australian Sports Commission, 2019), contemporary models of holistic physical literacy development (Whitehead, 2010), and research exploring interconnected physical, psychological, cognitive, and social domains supporting lifelong engagement in movement and physical activity.

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