

I.D.E.A. (*Invention, Design & Exploration Adventure*)

OUTREACH PRE-VISIT PAGE (GRADES 3-8) 60 minutes

Arizona Science Center will be arriving no later than 15 minutes before the start of your program(s). **I.D.E.A.** is intended to be a hands-on program that covers:

- The goal of an invention or design (i.e. does it make something faster, smaller, easier)
- Working by trial and error (what improvements can be made)
- Forces in motion; inclined planes, gravity, friction, acceleration

PROGRAM NEEDS

- Class teacher/instructor must remain in room for duration of program
- Requires a level surface for students to work on (flat desks or tables)
- Limited to 30 participants who will be split into groups of 3 students per group

SCIENCE STANDARDS

Grade 5: S5C2PO1: Describe the following forces: gravity, friction.

S5C2PO2: Describe the various effects forces can have on an object (e.g., cause motion, halt motion, change direction of motion, cause deformation).

S5C2PO3: Examine forces and motion through investigations using simple machines (e.g., wedge, plane, wheel and axle, pulley, lever).

S5C2PO4: Demonstrate effects of variables on an object's motion (e.g., incline angle, friction, applied forces).

Grade 8: S5C2PO1: Demonstrate velocity as the rate of change of position over time.

S5C2PO2: Identify the conditions under which an object will continue in its state of motion (Newton's 1st Law of Motion).

S5C2PO4: Describe forces as interactions between bodies (Newton's 3rd Law of Motion).

