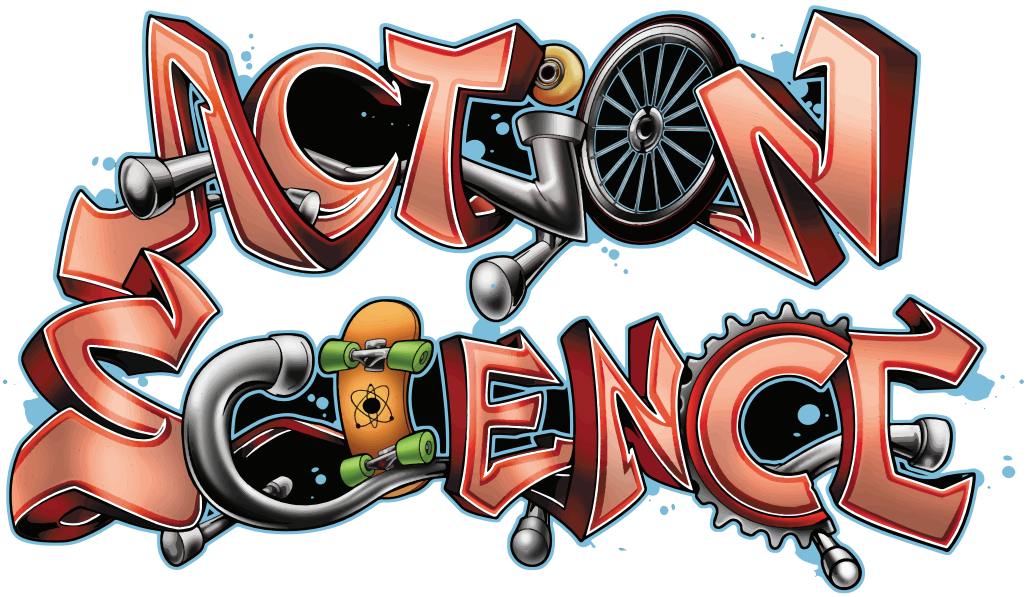

CREATIVE STUDIOS
CS
COMICS
dr. skateboard's
ACTION
SCIENCE
dr. skateboar
Simple Machines
Written by Bill Robertson, Ph.D.
Illustrated by Tania Sanchez

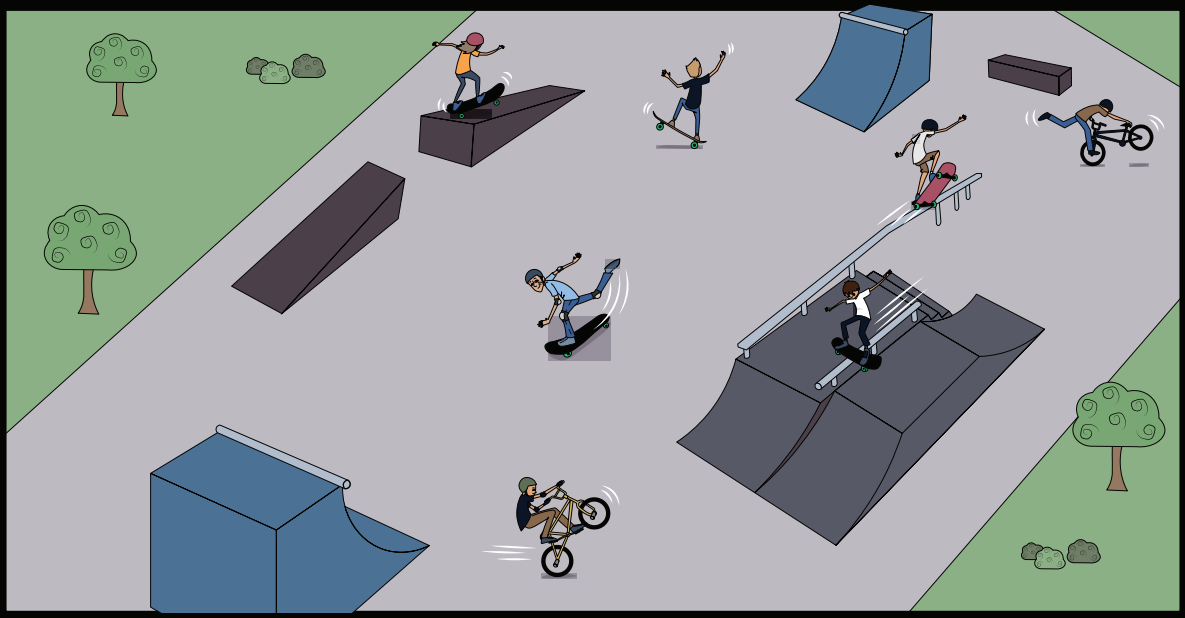


About Action Science

How can you get young people interested in science and mathematics? What efforts are there to integrate the experiences of middle school students into the things they need to do and learn in school? How can action sports, like skateboarding and bicycle motocross (BMX), be used to teach physics, algebra, data collection, and help students to grow in their engagement and motivation in science and mathematics? The answer lies in part to an approach I have termed as Action Science.

Action science is an example of the use of transformative educational strategies to enhance the study of science for K-16 students. The term "action science" can be defined as the use of familiar objects, circumstances and situations within the lives of students in order to explain specific concepts in science built around student interests, including action sports like skateboarding and BMX.

In schools, the approach to these topics is also done in very traditional manners that employ content delivery mechanisms that are often not put in relevant terms for the K-16 learner.



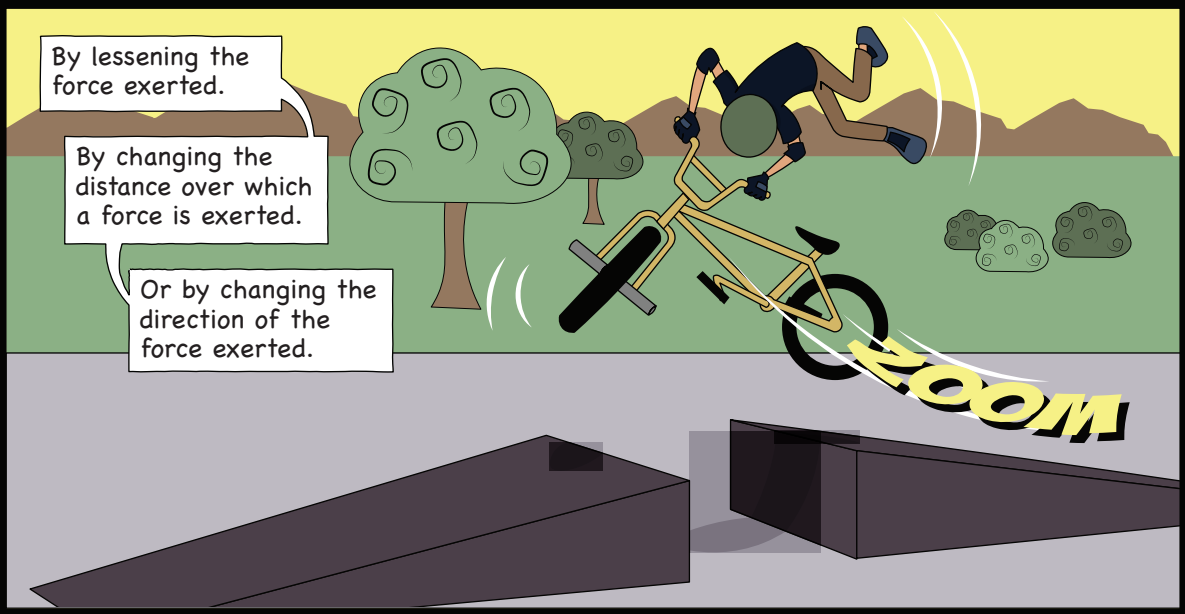

Hi, my name is Bill Robertson

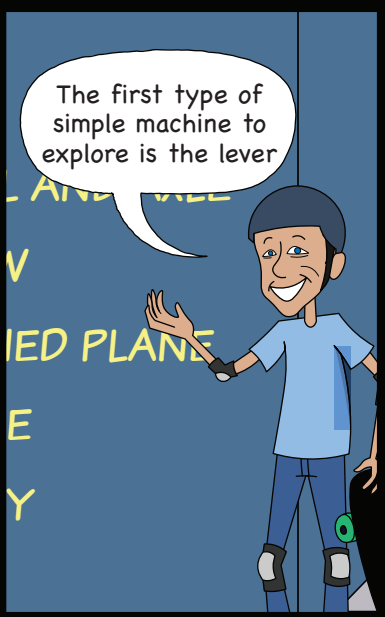

But you might know me better as Dr. Skateboard.
Welcome to Dr. Skateboard's Action Science.
SLISH

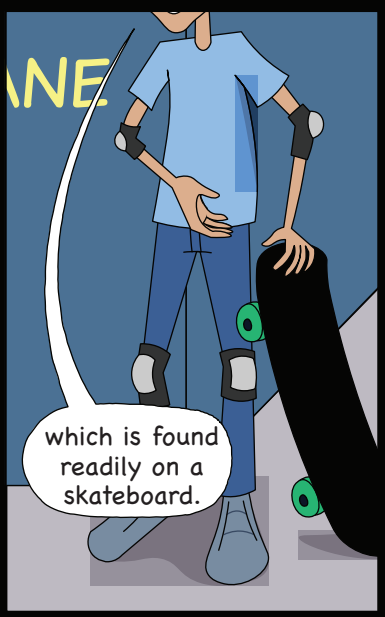

A comic that explores the concepts of physical science found in skateboarding and BMX.


In this comic, you will become familiar with various types of . . .
CLANK

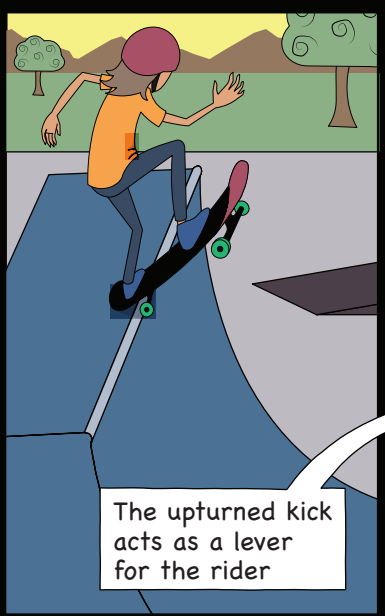

Simple Machines, what they do and how
they help riders perform tricks and maneuvers on boards and bikes.
SWOOSH
So let's get moving and learn about simple machines!
XLE
NE
Simple machines are any device that makes work easier with a single motion.
WHOOSH
Although not all simple machines are used in skateboarding and BMX . . .
a number are present.
LEVER
WHEEL AND AXLE
SCREW
INCLINED PLANE
WEDGE
PULLEY
Simple machines do not allow you to do less work . . .
but they do make the work easier in three main ways.
AXLE
LINED PL NE
DGE
LLEY

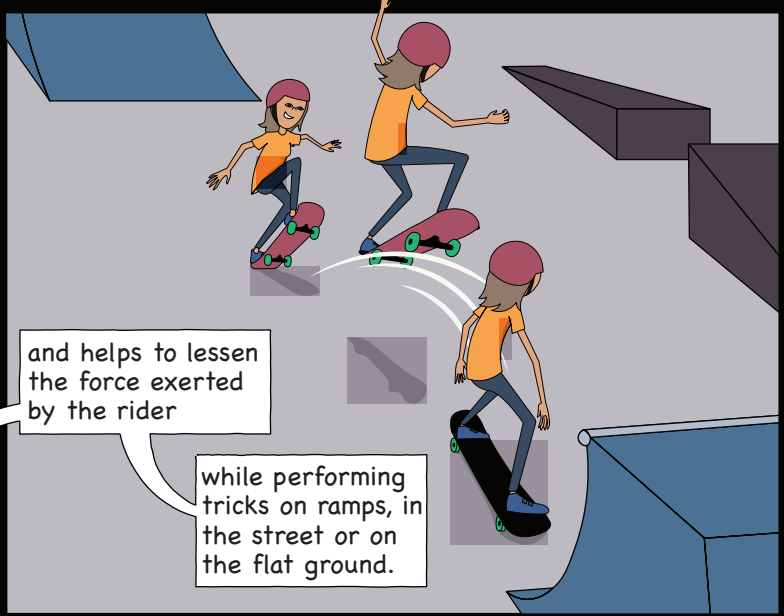

By lessening the force exerted.
By changing the distance over which a force is exerted.
Or by changing the direction of the force exerted.
ZOOM

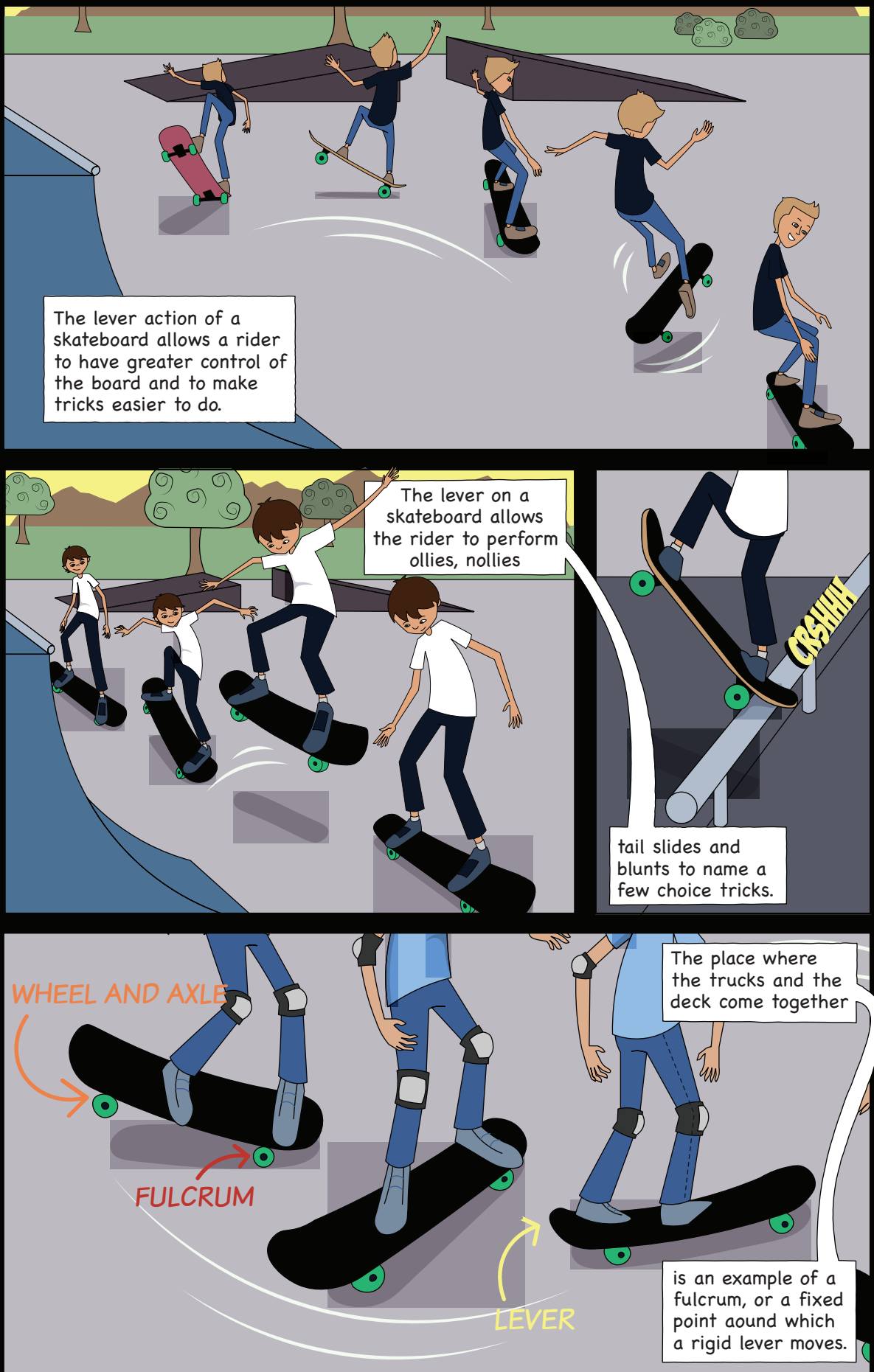

The first type of simple machine to explore is the lever


which is found readily on a skateboard.


The skateboard has an upturned area on the nose (or front) of the board, as well as on the tail (or back) of the board.
LEVER

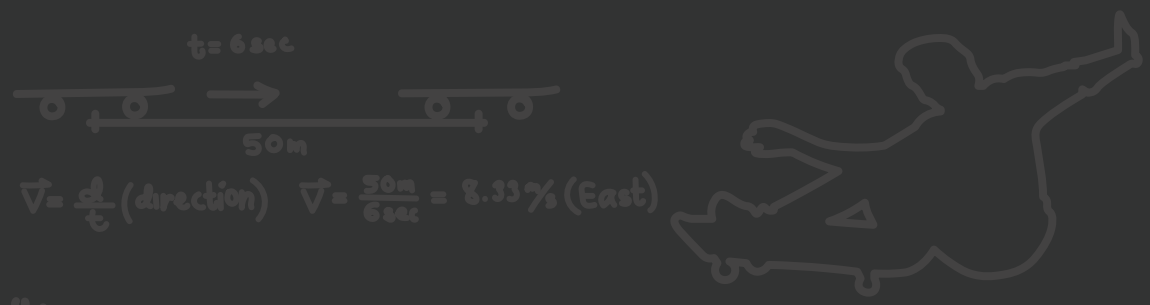

The upturned kick acts as a lever for the rider


and helps to lessen the force exerted by the rider
while performing tricks on ramps, in the street or on the flat ground.

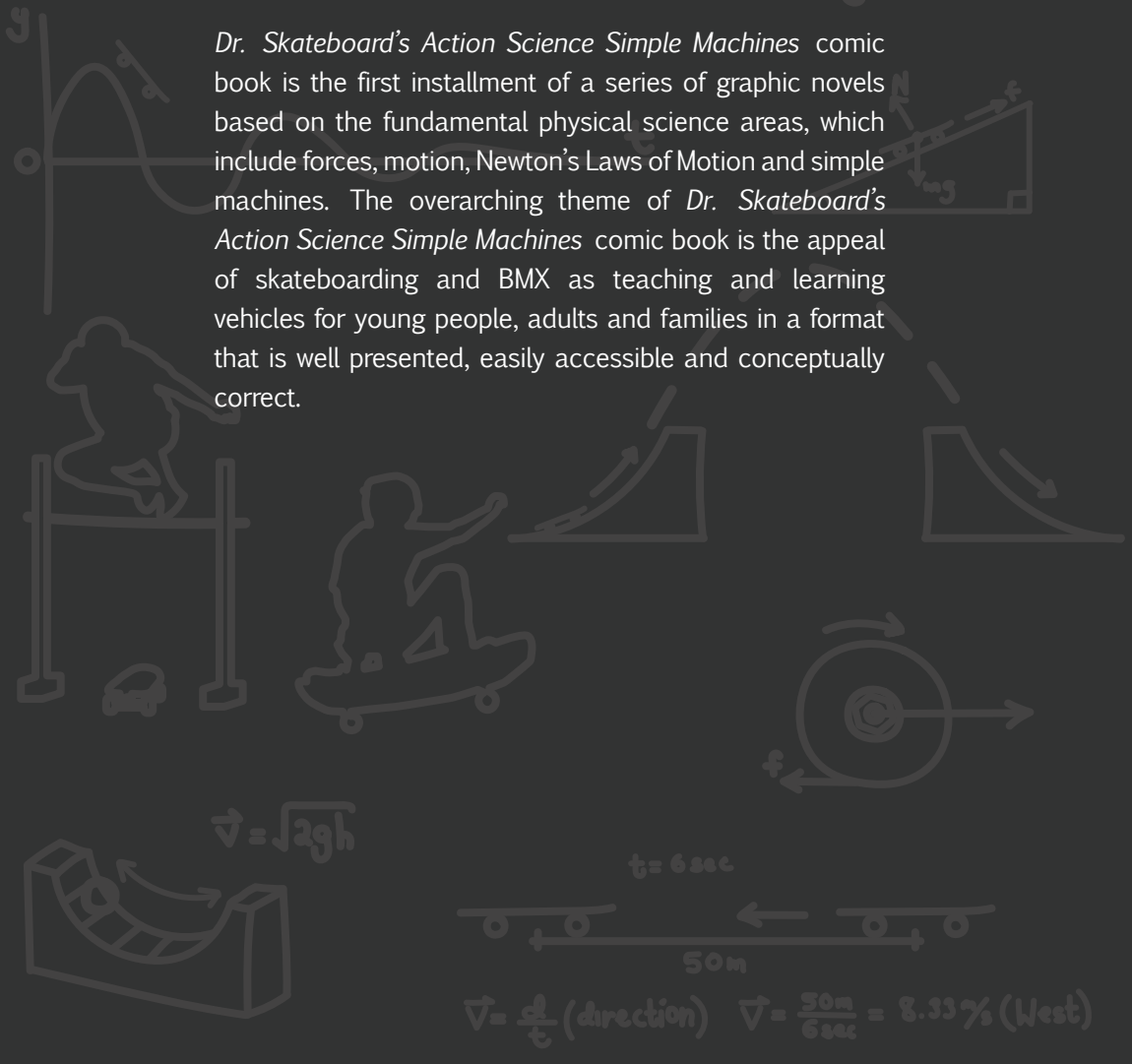

The lever action of a skateboard allows a rider to have greater control of the board and to make tricks easier to do.
The lever on a skateboard allows the rider to perform ollies, nollies
CRSHHH
tail slides and blunts to name a few choice tricks.
WHEEL AND AXLE
FULCRUM
LEVER
The place where the trucks and the deck come together
is an example of a fulcrum, or a fixed point aound which a rigid lever moves.

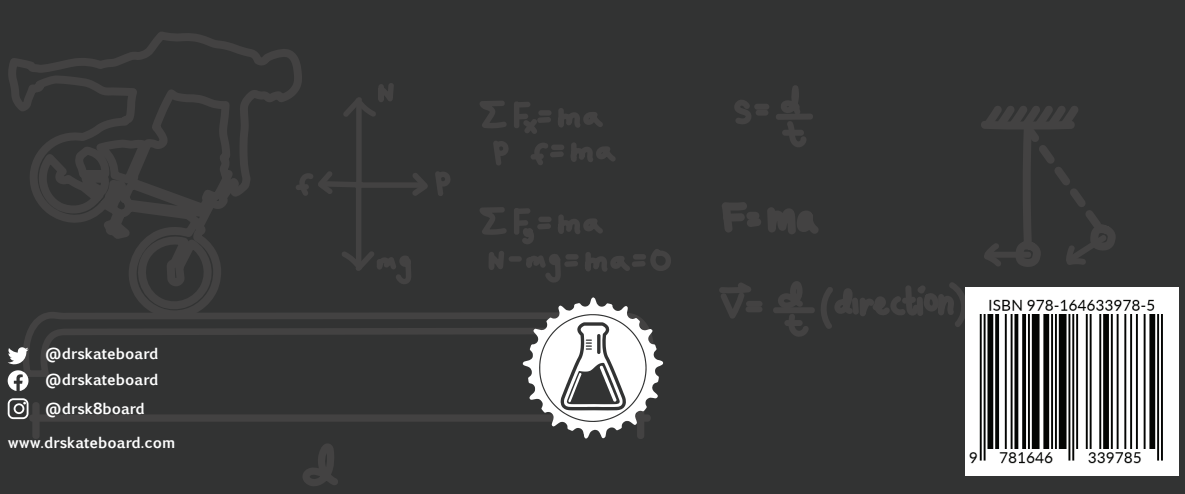
About Dr. Skateboard

Dr. Skateboard is Bill Robertson, a Ph.D. in Education and a skateboarder for over forty years. Bill has done hundreds of demonstrations nationally and internationally in festivals, events and in academic settings. He has performed for thousands of students in elementary, middle, and high school levels throughout the United States, in Canada, Mexico and into South America. Bill has been an educator for over twenty–five years. His academic areas of expertise are science education, curriculum development and technology integration. He also teaches and does research in the areas of problem-based learning and action science.



Dr. Skateboard's Action Science Simple Machines comic book is the first installment of a series of graphic novels based on the fundamental physical science areas, which include forces, motion, Newton's Laws of Motion and simple machines. The overarching theme of *Dr. Skateboard's Action Science Simple Machines* comic book is the appeal of skateboarding and BMX as teaching and learning vehicles for young people, adults and families in a format that is well presented, easily accessible and conceptually correct.





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