Year 3 Summer 2 DT/ Computing Gears and Robotics

Learning objectives	Key vocabulary	Useful websites to search for
Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] Problem solve as they explore the features of the Control Box. ***(Science and Technology)*** Design and alter a series of commands made to the Control Box as they operate a motor, LEDs, and a buzzer. ***(Science and Technology)*** Use the looping function of the Control Box to repeat a pattern of actions. ***(Science and Techn*** Use the instructions to build the K'NEX Spinning Carpet Ride model. ***(Science, Technology, and Engineering)*** Use the instructions to build the K'NEX Spinning Carpet Ride model. ***(Science, Technology, and Engineering)*** . Program the K'NEX Spinning Carpet model to add excitement and safety for the riders. ***(Science, Technology, Engineering, and Mathematics)*** Design a system and an actual safety device to remove riders from the ride in the event of a failure. ***(Technology and Engineering)*** Analyze a group of gears to determine whether a machine is geared up or geared down and to find the gear ratio of the gear system. ***(Science, Technology, Engineering and Mathematics)*** Rebuild the K'NEX Spinning Carpet Ride with a new gear ratio and analyze the impact of the change to the system. ***(Science, Technology, Engineering,***	**Cams**- a projection on a rotating part in machinery, designed to make sliding contact with another part while rotating and impart reciprocal or variable motion to it. Control Box - control box provides the physical interface to allow an operator to control a piece of equipment and monitor its performance. Control boxes typically contain a variety of instruments such as switches, knobs, sliders and buttons. **Debugging**- Finding and correcting errors **Gears- Gears** are wheels with teeth that slot together. ... If the **gears** are of different sizes, they can be used to increase the power of a turning force. The smaller wheel turns more quickly but with less force, while the bigger one turns more slowly with more force. **Levers** - a rigid bar resting on a pivot, used to move a heavy or firmly fixed load with one end when pressure is applied to the other. **Linkages** - A mechanical linkage is an assembly of bodies connected to manage forces and movement. **Logical steps** –Using rules to solve problems **Programming** - Instructions written in a language (code) computer can understand. **Robot**- A robot is just a computer that can perform a series of complex tasks automatically. Robots use a central computer to process information, as well as input and output devices to react and to carry out tasks. **Sequencing**- A set of instructions that are followed in order.	http://www.knex.co.uk/