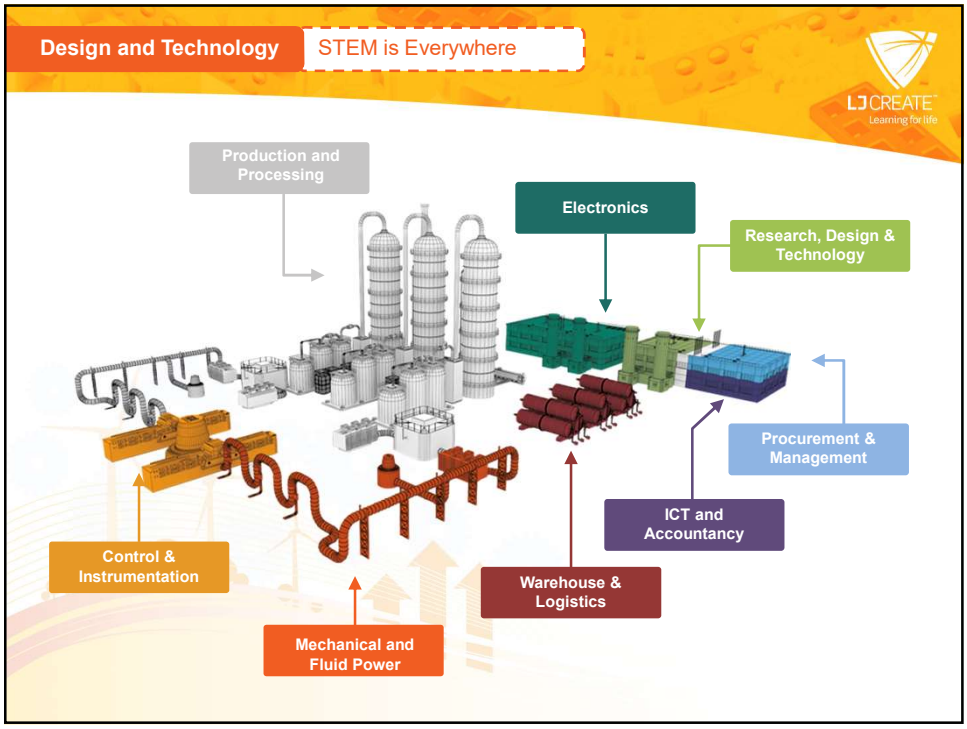
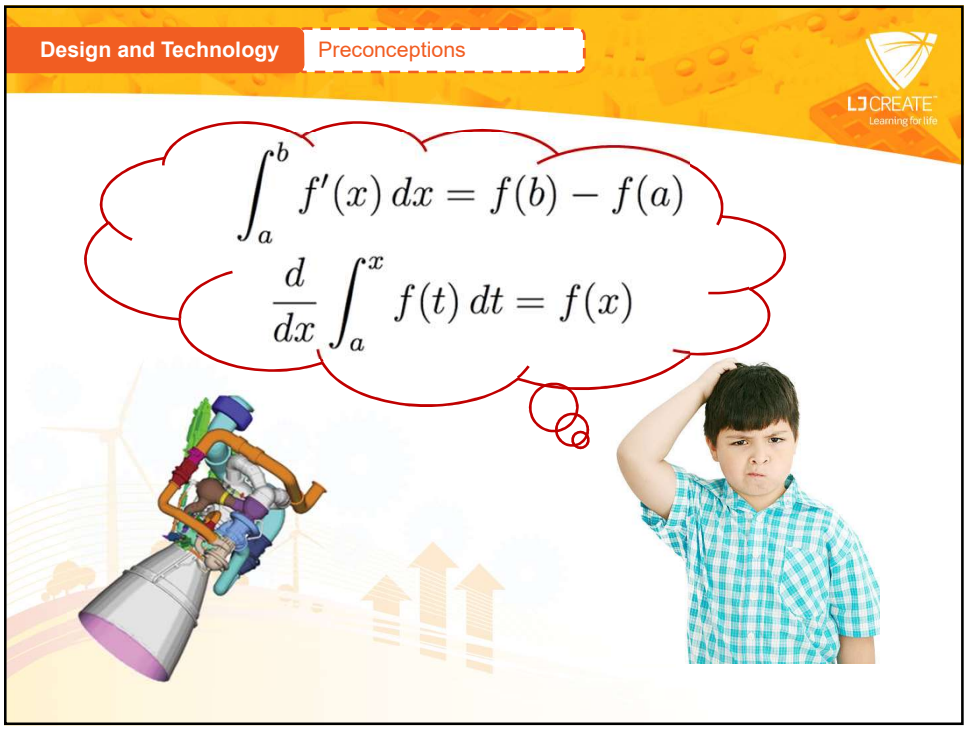

Gear Trains
Gear trains are two or more gears meshed together. They are used to transmit rotary motio
through many
Identify problem or need
Define requirements
Brainstorm solutions
Evaluate solutions
Design and build prototype
Test and evaluate prototype
Communicate results
Using Project Based Learning for Career
Exp n Mid l


Design and Technology
All Levels of STEM Roles
LJCREATE
Learning for life
CNC Operator
Lab Assistants
Graphic Designer
Buyer
Nurses
Equipment Technicians
Doctors
PLC Technician
Maintenance
Speech Pathologist
Forensic Technicians


Design and Technology
STEM is Everywhere
LJCREATE
Learning for life
Production and Processing
Electronics
Research, Design & Technology
Procurement & Management
ICT and Accountancy
Warehouse & Logistics
Mechanical and Fluid Power
Control & Instrumentation

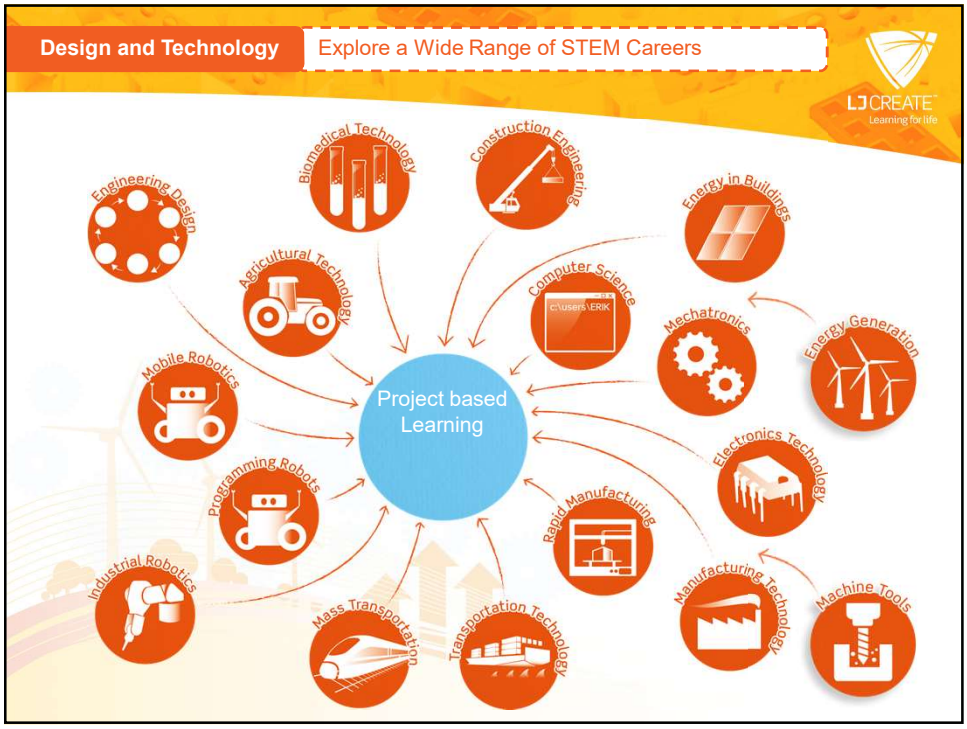

Design and Technology
Preconceptions
LJCREATE
Learning for life
$\int_a^b f'(x)\,dx = f(b) - f(a)$
$\frac{d}{dx}\int_a^x f(t)\,dt = f(x)$

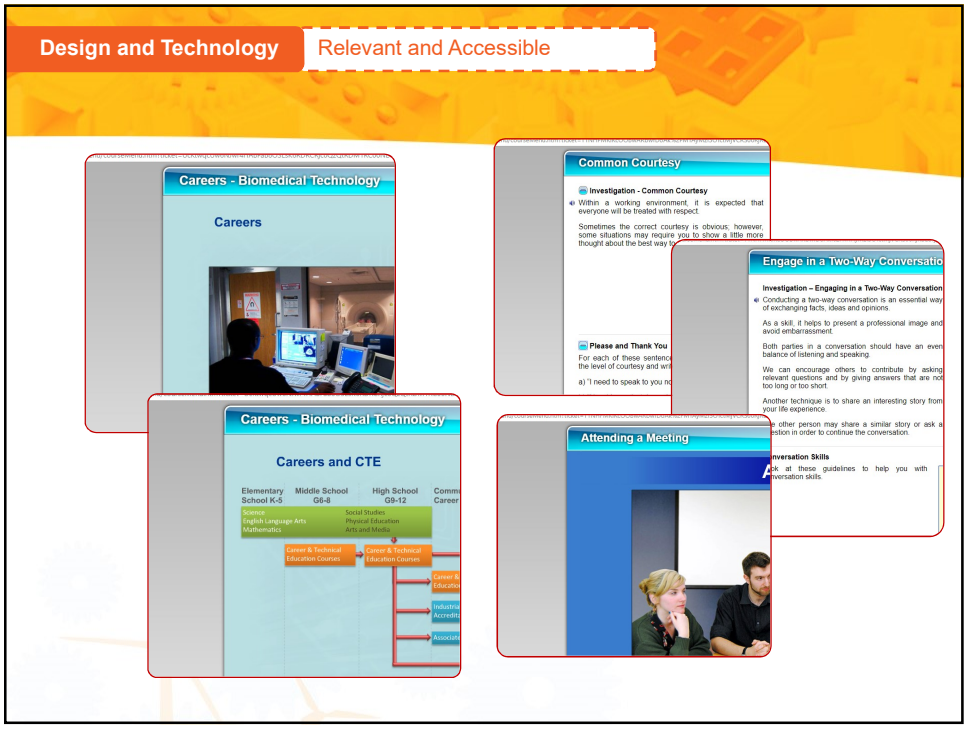
Design and Technology Start Early

GRADE 2 ⋯▶ GRADE 5

GRADE 6 ⋯▶ GRADE 10

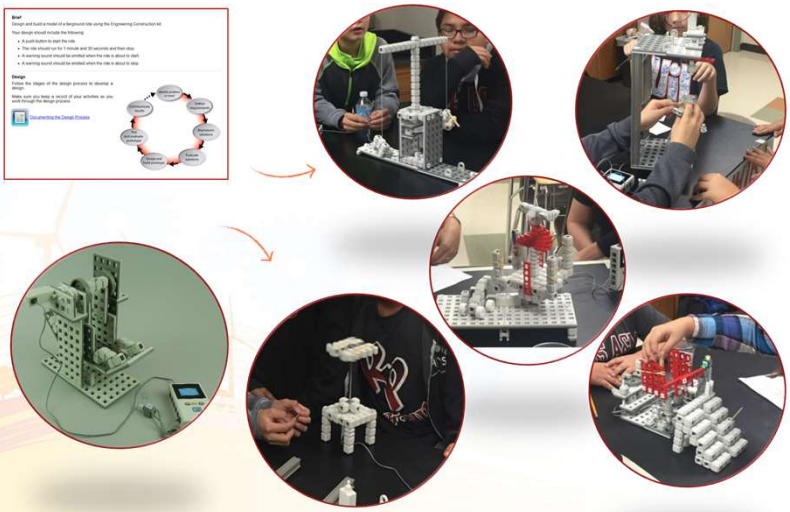
"Project Based Learning **-** the act of learning through identifying a real-world problem and developing its solution. Students show what they learn as they journey through the unit, not just at the end."


Design and Technology
Explore a Wide Range of STEM Careers
LJ CREATE
Learning for life
Project based Learning
Biomedical Technology
Construction Engineering
Engineering Design
Energy in Buildings
Agricultural Technology
Computer Science
c:\users\ERIK
Mechatronics
Energy Generation
Mobile Robotics
Programming Robots
Electronics Technology
Rapid Manufacturing
Industrial Robotics
Manufacturing Technology
Machine Tools
Mass Transportation
Transportation Technology


Design and Technology
Relevant and Accessible
Careers - Biomedical Technology
Careers
Common Courtesy
Investigation - Common Courtesy
Engage in a Two-Way Conversatio
Investigation – Engaging in a Two-Way Conversation
Careers - Biomedical Technology
Careers and CTE
Attending a Meeting

Design and Technology | Project Based Learning

Projects with scope for a wide range of solutions.



Design and Technology | Project Based Learning

Examples

Science

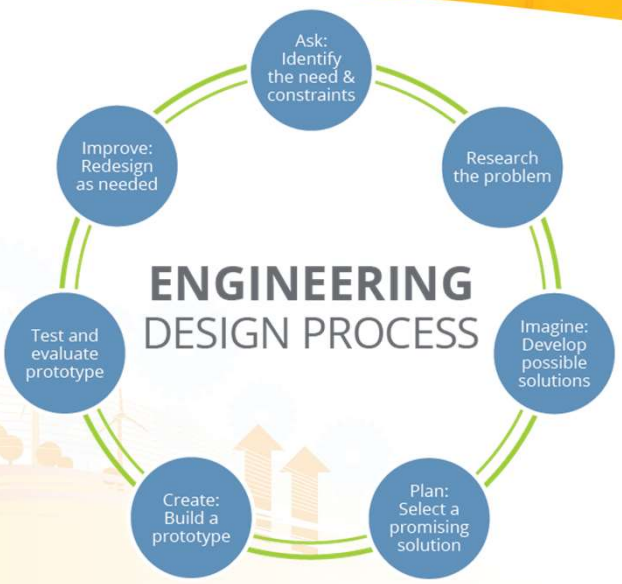
1. Construction: Forces on structures and physical properties of materials.
2. Agriculture: Genetic modification and its role in agriculture.
3. Biomedical Technology: How immunization and vacination works.
4. Transportation: Torque, power and efficiency.
5. Mass Transportation: Mass and velocity – momentum.
6. Mechatronics: Fluid mechanics, compressing fluid.
7. Electronics: Potential difference, resistance and current.
8. Energy in Buildings: Solar and wind power, energy
9. Manufacturing: Properties of polymers, metals and alloys

Math and English

1. Mechatronics: Gear ratio calculations.
2. Mass Transportation: Impact force calculations.
3. Agriculture: CO2 offset calculations for biomass production.
4. Electronics: Voltage divider calculations.
5. Energy in Buildings: PV cell generation tariff calculations; ROI term.
6. Industrial Robots: Present your design for an industrial robot to your classmates
7. Biomedical: Report how Sir Fleming would develop penicillin in a modern pharmaceutical lab.
8. Agriculture: Research and report on how automation and robotics have changed large-scale arable farming.
9. Engineering Design: Present three different designs for a flashlight stating advantages for each.
10. Mechatronics: What can you say about the effort needed to move a load up an inclined plane?
11. Mobile Robots: Write and present your proposal for a robotic space mission to explore other planets in our Solar System.
12. Construction: Describe the purpose of a concrete slump test including the role of additives.

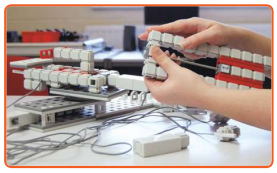
Design and Technology Project Based Learning

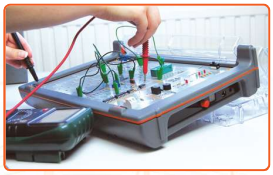
LJ CREATE Learning for life



Design and Technology Student Centered Projects

LJ CREATE Learning for life



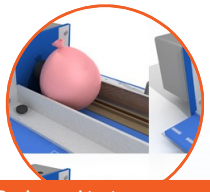
- Relevance, excitement and motivation.

Design and Technology Models and Prototype

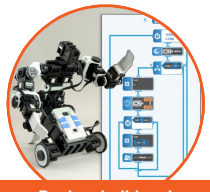
Design and build an automated railroad crossing

Build and test a bridge

Build and test an electronic control system



Design and test a passenger crash protection system

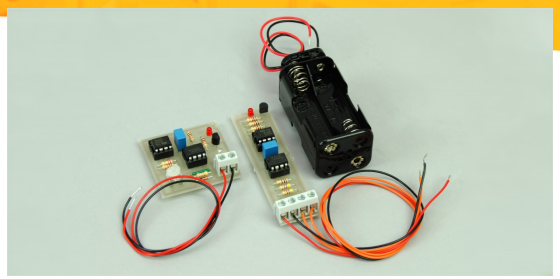


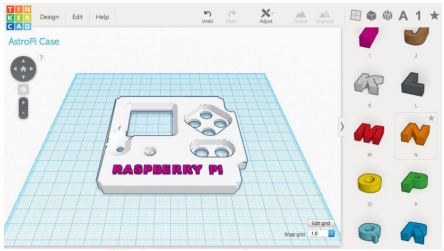
Design, build and program robotic systems

Build a household automatic sunshade cooling system

Design and Technology Technology

Creating Technology

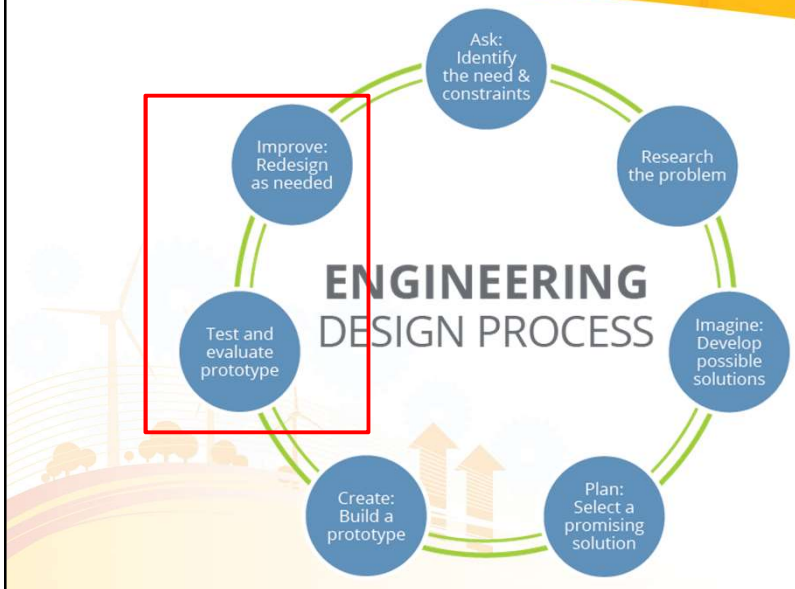




Using Technology

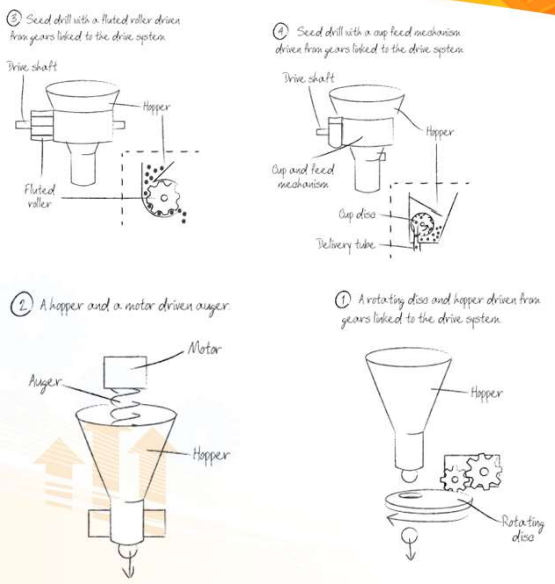
Design and Technology — Working In Teams

Design and Technology — Project Based Learning

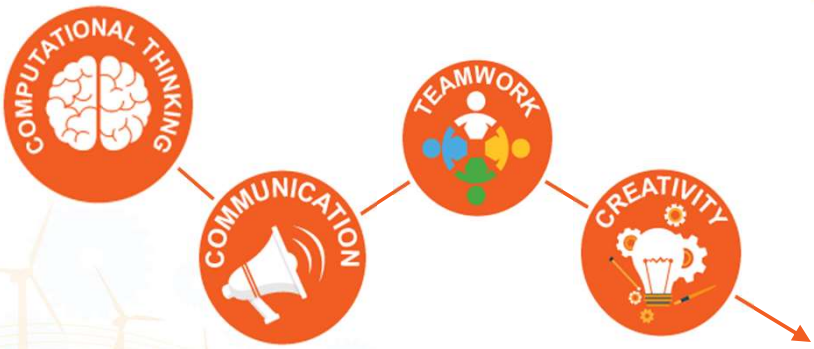


Design and Technology Communication

- Portfolio
- Report
- Diagrams
- Presentation
- Video



Design and Technology Benefits of Project Based Learning



Students enjoy and engage with project based learning while enhancing their STEM learning skills through hands-on open-ended projects and real-world problem solving.

Design and Technology | Failure Is Important

IF "PLAN A" DIDN'T WORK, THE ALPHABET HAS 25 MORE LETTERS!

Interior Concepts™
solutions that fit.