



SKILLS EXPLORATION DAYS DESIGN CHALLENGE

The Power of Innovation to a Sustainable Future

Overview

"If the global population reaches 9.6 billion by 2050, the equivalent of almost three planets will be required to sustain [our] current lifestyle."¹ In response to this staggering reality, on September 25th 2015, world leaders from 193 countries agreed to 17 *Global Goals for Sustainable Development*² (also known as Global Goals). The Global Goals³ are a blueprint to achieve a better and more sustainable life for us all by 2030. It is now up to all of us to promote sustainable development by working together to build a better future for everyone.

Design Rational

Sustainable development⁴ requires an obligation to reduce our ecological footprint. We have become unsustainable cities who produce and consume large amounts of products, dispose toxic pollutants into the environment, and waste resources far beyond what our planet can provide. These irresponsible actions have created many devastating consequences to humans, plants, animals and the environment. If we don't start to responsibly produce, consume and dispose in more sustainable ways, we will cause irreversible damage to our health and the planet.

Problem Scenario

We have a very important mission to complete in Alberta by 2030! ***Implementing the principals of sustainable development and the Global Goals⁵, your team has been selected to create a prototype that will promote more responsible and sustainable production, consumption and disposal habits of the individuals in your school or community.*** Using your innovative and inventive powers, you must ensure the prototype will create positive changes in lifestyles, health, infrastructure, technology, natural resources, wildlife or nature.

Success Determinants & Parameters

For this design challenge, your **prototype** model must be original (not an exact copy of something that already exists) and realistic, allowing an individual in your school or community to recreate and use it on their own. Other criteria and parameters for a successful prototype are outlined below.

Success in the classroom will be determined by:

- Quality of initial design sketch as a potential solution to the Design Challenge.
- Creative and appropriate use of the provided materials and resources (**see chart of potential Learn-A-Skill station tools, technology and materials**).
- Degree to which you have accurately and carefully developed your prototype (is it to scale, is it functional, the aesthetic quality, constructed and assembled well, etc.).
- Uniqueness and usability of your design sketch and prototype including the degree to which it solves an actual problem and adds value for the users.
- Alignment to design motto: *Make it smaller, stronger, do more, be easier to use, be cheaper.*

Success at Skills Exploration Days will be determined by:

- Appropriate and safe use of tools and materials provided on site.
- Quality of the integration of tools and materials from at **least 3 of the Learn-A-Skill stations**.
- Quality of your Reflection Board display - title of prototype, final prototype sketch, project description and team reflection (**this will be completed on site at the Graphic Design Learn-A-Skill station**).
- Self-evaluation of the design, prototype and your personal skill set.

*A **prototype** is a model that illustrates the functionality of an idea or design. It may be life sized or scaled to a model that fits in your hand. However, a prototype needs to be as real looking as possible, using the materials available.

SUGGESTED RESOURCES TO GET YOU STARTED

17 Global Goals for Sustainable Development:

World's Largest Lesson - *lesson plans, videos and many more creative resources for teaching the Global Goals*

<http://worldslargestlesson.globalgoals.org/>

United Nations^{1, 5} - *news topics, targets, facts and figures related to each of the Global Goals*

<https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

United Nations Development Programme - *examples of goals in action, targets, facts and figures related to each of the Global Goals*

<http://www.undp.org/content/undp/en/home/sustainable-development-goals/>

Project Everyone - *examples of goals in action and targets related to each of the Global Goals* <https://www.globalgoals.org/>

Lesson Plans to Introduce the Global Goals:

What world do you want in 2030 – A lesson for anyone to introduce the Global Goals

<http://cdn.worldslargestlesson.globalgoals.org/2018/06/FINAL-Volunteer-Lesson-Plane-June.pdf>

Introducing the Global Goals for Sustainable Development

<http://cdn.worldslargestlesson.globalgoals.org/2017/08/13-Introducing-the-Global-Goals-60min2.pdf>

Videos:

The United Nations Sustainable Development Summit: 17 Goals to Transform Our World² – *a look inside the 2015 United Nations General Assembly as leaders celebrate the adoption of the Global Goals* <https://vimeo.com/151435077>

Pt 1 Malala Introducing World's Largest Lesson³ - *learn what the Global Goals are and how everyone can use their 'superpowers' to change the world* <https://vimeo.com/138852758> (sign language <https://vimeo.com/142124730>)

Pt 2 Changemakers Take Action - *get inspired by young changemakers around the world who use invention, innovation and campaigning to do their part in completing the Global Goals* <https://vimeo.com/178464378>

Pt 3 Getting Started on a Goal – *how to decide which Global Goal is most important to you and how you can make a difference*

<https://vimeo.com/266852848>

What is Sustainable Development?⁴ <https://vimeo.com/144354623>

Student-Friendly Literature:

The Power of Stories – *interactive comic books and stories to help students understand the Global Goals*

<http://worldslargestlesson.globalgoals.org/using-the-power-of-comics/>

The World We Want: A Young Person's Guide to the Global Goals for Sustainable Development – *a handbook of fun activities to help students understand the Global Goals* http://cdn.worldslargestlesson.globalgoals.org/2016/05/The-World-We-Want-Double-Page-Booklet-style_HiRes_English.pdf

Changemakers Take Action - *a booklet about how young change-makers around the world are taking action to complete the Global Goals*

<http://cdn.worldslargestlesson.globalgoals.org/2016/08/Changemakers-Take-Action2.pdf>

LIST OF POTENTIAL TOOLS, TECHNOLOGY & MATERIALS

Learn-A-Skill Station	Potential Tools & Technology	Potential Materials
Cabinet Making	Dremel, Brad Nailer, Sander	Variety of Wood Scraps, Nails
Carpentry	Mitre Saw, Power Tools, Scroll Saw	Variety of Wood Scraps, Screws
Electrical Installation	Wire Crimpers, Wire cutters	Electrical Tape, Wire, Switches
Fashion Design	Sewing Machine, Scissors	Variety of Fabric, Thread, Notions
Graphic Design	Computer, Graphic Software	Fonts, Colors, Pictures
Painting and Decorating	Brush, Roller	Variety of Paint and Wall Paper
Plumbing	Tube Cutter, Crimper	PVC Pipe & PEX
Sheet Metal	Bender, Shears, Drill Press	Sheet Metal Scraps
Welding	Welder, Grinder	Variety of Metal Scraps