

The Makerway

K-7 ADST Projects supported by the Comox Valley Career Programs Department

2020/2021

It is our goal to assist teachers with exploring a variety of engaging, safe, and flexible ADST Projects with their students.



Comox Valley Schools

A Community of Learners

INNOVATIVE • INQUISITIVE • INCLUSIVE

Inclusion – Awareness—Growth

GOAL of the Careers Team

To support the learning of a broad range of student interests by providing and supporting a variety of hands on ADST Projects to teachers that will:

1. Enhance student engagement;
2. Support innovative learning environments;
3. Provide options for programs of choice;
4. Develop students design thinking, ideating and collaborative skills capacity.



ADST Hands on Support for Teachers

The Careers Team will be offering several professional learning opportunities throughout the year for teachers to gain hands on experience working with tools and materials not typically found in a K—7 setting. This year we will offer, based on demand, the following:

- Grade 7 ADST ???
- Grade 5 Christmas Tree
- Grade 4 Planter/Pollinator Box
- Grade 5 Bird Feeder
- Grade 6 Bird House
- Grade 7 Mason Bee Project

Most of these projects come with a Teacher Workbook to help guide you through the projects, materials for the project and support from the careers team if requested.

Information for each ADST project will be sent out to the appropriate grade level.

This booklet is a work in progress and projects will be added as the year goes on. For the most updated copy please see the Comox Valley Career Website [HERE](#) under “Make Space Materials and Teacher Resources”

Please contact Steve.Claassen@sd71.bc.ca or Dawn.Anderson@sd71.bc.ca

for more information and to sign up

Maker Carts, Supplies & Materials

Your Maker Cart came supplied with tools and equipment from the Careers & ADST Department. Over time supplies and tools may go missing or get worn out. The Careers Department will help restock your cart.

Below is a list of supplies that each cart should have.



TAPE MEASURE 16'	2
WRENCH 8"/200MM	1
VICE GRIP PLIER	1
PLIERS	1
PLIERS	1
MITRE SQUARE 8"	1
HAMMER 13 OZ	2
HAMMER 7 OZ	2
20-600 MITRE BOX WITH SAW	1
PLANE	1
FILE ROUND	1
FILE FLAT	1
FILE HALF ROUND	1
C CLAMP 3"	2
C CLAMP 5"	3
C CLAMP 4"	3
METAL RULER	2
SHARPTOOTH SAW 10"	3
CHISEL 3/4"	1
EXACTO KNIFE	1

DUSTPAN & BRUSH	1
SPOKE SHAVE	1
SQUARE 8 X 12	1
COMBINATION SQUARE	1
F BAR CLAMP	3
CLAMP QUICK RELEASE	2
CORDLESS DRILL	1
CORDLESS DRIVER	1
CHARGER	1
SCREWDRIVER SET	2
GLUE STICKS	
GLUE GUN	2
DRILL BIT SET	2
DUCT TAPE	1
POWER BAR	1
25' EXTENSION CORD	1
SAFETY GLASSES	30
SANDPAPER (80—220 Grit)	
120 GRIT SANDPAPER	
150 GRIT SANDPAPER	

Materials the Careers & ADST Department will supply for K-7 Elementary projects

Fasteners—Screws, Nails, Glue

Lumber (1" x 3", 1" x 4", 1" x 6", 2" x 4", CANT Strips)

Wooden Dowelling (1/4", 1/2")

Plywood pieces (1/8" and 1/4")

Materials related to Skills Canada Events

The Grade 4 Planter/Pollinator Box



This is a great project for students in grade 4. The pollinator box could be built as a Mother's/Grandmother's Day gift, or a holder of Spring flowers to support bees within a community. As well, the box may be used to support the growth of native plants that are in decline.

There are many great ways to support the environment and ecosystems.

Please go to our website for the Grade 4 Planter/Pollinator workbook to help you get started and work through your project and request materials.

<http://careerprograms.comoxvalleyschools.ca/>

Materials for 30 Students	
Description	Quantity
1" x 4" wood - 4ft long	12 pcs
1/4" x 2" cedar Lathe—3ft long	30 pcs
1" Finishing Nails	900
Soil can be provided if requested	

Spaghetti Bridges (Grade 6 & 7)

Materials for 30 Students (groups of 2-3)	
Description	Quantity
1 kg box Catelli Spaghetti	10
Hot Glue guns & Sticks	
Loading Mass Platform	1
Digital Scale	1



Spaghetti Bridges are a great project to understand construction techniques. The point of the competition is to build the lightest structure that can suspend a 1kg of weight for 60 seconds.



Skills Canada Regionals will be hosted at G.P. Vanier on Friday, February 21st, 2020. The team that designs the lightest structure to hold a 1kg weight will be invited to compete. The official Skills Canada Competition Document can be found [HERE](#)

String Art

(Grade 5-7)



Materials for 30 Students

Description	Quantity
1" x 6" lumber or 1/2" & 3/4" plywood (various sizes)	30
3/4" or 1" nails	1500
Various Colours of String	3 pcs
Hanger for wall	30
#4 1/2" screws	60

For this project you just need a bunch of scrap wood of various sizes and shapes, nails and coloured string. Find a simple design on line and print, temporarily glue a pattern onto the piece of wood and then have students nail into the wood to outline the pattern. Then get coloured string and turn it into string art.

Simple Picture Frames

(Grade 2—5)

Materials for 30 Students

Description	Quantity
Short 45 degree Wooded strips (various sizes in pairs)	30
Long 45 degree Wooded strips (various sizes in pairs)	30
Hanger for wall	30
#4 1/2" screws	60



Picture frames can be built in so many different ways and can have many things incorporated into them. Paint them up, decorate them with things, put a picture in behind or do some bead work designs (binary code). The basic frame is always the same with 4 pieces (2 ends and 2 sides cut the same size.). These pieces can come to you in random lengths already cut on the 45 degree angle or left as long pieces for your students to cut themselves.

Grade 7 Mason Bee Houses



Materials for 30 Students	
Description	Quantity
1" x 4" post - 6ft long	30 pcs
Compostable Straws	5 Boxes
Sandpaper	30 pcs
1 1/2" Finishing Nails	900

The Mason Bee house is a great project for grade 7 students as they can learn about local bee colonies and how ecosystems depend on them. There is so much to learn and do with bees!

This is another great Spring time project and the Carers team has developed a workbook to support you as you design this project with your students.

Cell Phone Holder (Grade 3—5)



Materials for 30 Students	
Description	Quantity
1" x 3" lumber - 4ft long	8 pcs
#6 1 1/4" wood screws	120pcs
Masking Tape	1 roll
Sandpaper	8 sheets

A very simple project that is perfect to start off with in your class. A couple simple cuts and a few screws and it is all done. Paint the project and give it as a gift to someone.

Gravity Car Vehicle

Grade 2-7



Materials for 30 Students

Description	Quantity
1 1/2" wheels	120
1 1/4" Screws	120
12" random cuts of 1"x3", 2"x4"	20-30
Track, Timer and digital scale will be supplied for the competition	1

Gravity cars can be done with a single class, grade wide or even entire school. It can start with the basic supplies listed but can become very sophisticated as students experiment with different designs and materials that could be used to speed up their car. The basic rules that everyone must adhere to are; Width = 4" (101 mm) maximum, Height = 6" (152 mm), Length = 12" (304 mm), Weight = 600 grams maximum



Skills Canada Regionals will be hosted at G.P. Vanier on Friday, February 21st, 2020. The fastest 2 cars in the school will be invited to compete at this competition. The official Skills Canada Competition Document can be found [HERE](#)

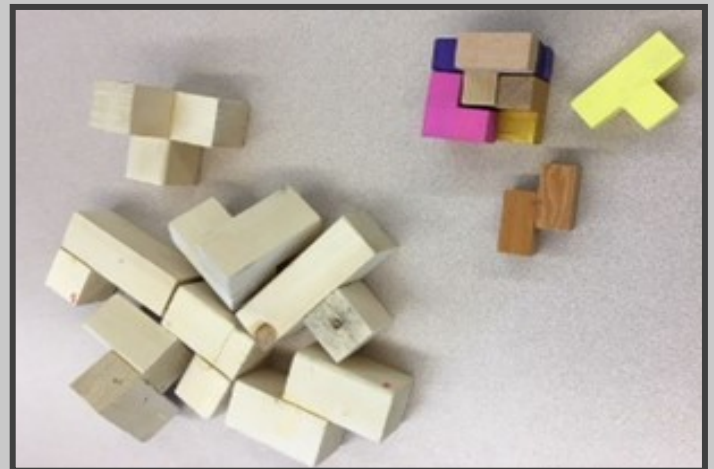


Soma Cube Puzzle

(Grade 6 & 7)

Materials for 30 Students

Description	Quantity
1 1/2" x 1 1/2" lumber—4ft long	30



The Soma cube is a solid dissection puzzle invented by Piet Hein in 1933. Seven pieces made out of unit cubes must be assembled into a 3x3x3 cube. The pieces can also be used to make a variety of other 3D shapes usually made out of 3 or 4 cubes.

The pieces of the Soma cube consist of all possible combinations of three or four unit cubes, joined at their faces, such that at least one inside corner is formed. There is one combination of three cubes that satisfies this condition, and six combinations of four cubes that satisfy this condition, of which two are mirror images of each other. Thus, $3 + (6 \times 4)$ is 27, which is exactly the number of cells in a 3x3x3 cube.

Painted Storage Box

(Grade 6 & 7)



Materials for 30 Students

Description	Quantity
8" wide 1/8" Plywood—4ft long	8
4" wide 1/8" Plywood—4ft long	30
Cants Strips—4ft long	30
3/4" nails	1500

This Painted storage box can morph into a project for several different uses. The standard size is 12" long, 8" wide and 4in tall. It is held together in all the corners with "Cant" strips by glue and nails. Once built, students could cover it with paper mache and paint it. Students can cut the ends out for handles to customize it.

This project is more advanced than others as there are many steps required for the build. As well, you can add on finishing details to make them look amazing! Please see above.

Small Toolbox

(Grade 6 & 7)

Materials for 30 Students

Description	Quantity
1" x 6"—4ft long	10
1" x 3" - 4ft long	14
5 1/2" wide 1/8" Plywood—4ft long	8
1 1/2" nails	240
3/4" nails	240
1/2" Dowel—4ft long	8



A small little tool box that can be built to have several different uses in the classroom or a gift for home. The dimensions of the toolbox are 12" long, 8" tall and 6" wide. This project too requires many steps and is for older students. Finishing can be done to make these projects look amazing and fit a variety of uses.

Paint it up and make it into a great little project for someone to enjoy!



Grade 5 Bird Feeder

Materials for 30 Students	
Description	Quantity
1" x 6" lumber—4ft long	30
1" x 2" lathe	12
1" Finishing Nails	
1 1/2" Nails	
Twine	1/4 roll

The birdfeeder is a great project for students in grade 5 as they can explore local birds, how to create an ecosystem that invites local bird species into a community etc. The bird feeder allows students to work collaboratively and ideate on alternative construction designs.

If you would like to run this with your grade 5 class please let contact your Careers Coordinator for materials and additional supports. There is a full teacher workbook to support this build, please see the Careers Website for full details, <http://careerprograms.comoxvalleyschools.ca/>.

Trebuchet Kit

(Grade 7)

Materials for 30 Students (10 groups of 3)	
Description	Quantity Per project
2 x 4 lumber (uprights)—4ft long	2
2 x 4 lumber (Base) - 4ft long	4
2 x 4 lumber (Bracing) - 2ft long	4
2 x 4 lumber (arm) - 4ft long	1
Pivot axle (dowel)	1
3" screws, rope, pouch, releases	



This is a great spring project for a grade 7 class to take part in. The trebuchets will come as 10 kits that can be assembled by students in groups of 3. They will take a number of days to assemble, take up a large amount of space and a lot of experimenting to get the adjustments just perfect to launch a ball a great distance. It is a great project to get students thinking and engage with problem solving. As well, the final launches will be gratifying and knowledgeable for students as they gain insight into historic war methodologies.

Skills Canada Wind Turbine

Grade 7



Materials for 30 Students (10 groups of 3)	
Description	Quantity
1/4" dowel—4ft long	12
Hubs	10
Thick card stock/Balsa Wood 4" x 36"	10
Mounting stand, motor will be provided	1

The careers team will be supporting wind turbines in classes this year. We will be holding a workshop and will purchase the supplies for the is project. The students job is to design and build the blades for the turbine where they would then test their design to see how much energy they can generate.



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Grade 6 Bird Houses

Materials for 30 Students	
Description	Quantity
1"x6" wood—ft long	
1/4" dowel—4ft long	
1 1/2" Nails	
PVC Pipe 4" Diameter	
Eye hooks	60



Bird Houses are a great collaborative project for students. They can explore local bird species and research how to support birds living within an ecosystem. There are a variety of options for students when considering what bird they are designing for.

There is a teacher workbook to support this build, as well, the Careers team is happy to support you as you navigate this project. Please contact your Careers Coordinators when requesting materials and additional supports. The workbook is located on our website, <http://careerprograms.comoxvalleyschools.ca/>