

ENGINEERING DESIGN



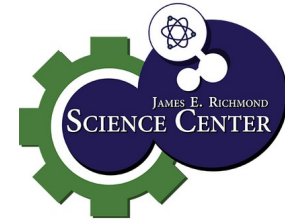
A
SCIENCE @ HOME
ACTIVITY

CHARLES COUNTY PUBLIC SCHOOLS
5305 Piney Church Road
Waldorf, MD 20602
301.934.7464
www.ccboe.com/ScienceCenter



DESIGN A QUIET SPOT
OUTSIDE

OVERVIEW FOR PARENTS



The Engineering Design Process...

This lesson introduces the process which engineers use when creating, developing, improving, or implementing an idea. The goal is to help students understand this process when coming up with a solution to a problem. In this experiment:

- A problem has been presented with some questions to think about
- Some ideas have been presented in helping them come up with a solution
- Students should take notes as they work through the process
- Length of time for the project will be different for each individual

We would love to see their creativity so please tag us at James E. Richmond Science Center on Facebook and Twitter.

Thanks for visiting! See you soon!

THE ENGINEERING DESIGN PROCESS

COMMUNICATE
your solution

ITERATE
to improve
your prototype

TEST
and evaluate
your prototype

DEFINE
the problem

IDENTIFY
constraints on your
solution (e.g. time, money,
materials) and criteria
for success

BRAINSTORM
multiple solutions
for the problem

SELECT
the most
promising solution

PROTOTYPE
your solution



CHARLES COUNTY PUBLIC SCHOOLS

5305 PINEY CHURCH ROAD

WALDORF, MD 20602

301-934-7464

WWW.CCBOE.COM/SCIENCECENTER

PROBLEM:



Now that everyone is home and the weather is nicer I would like a quiet reading space outside.

QUESTIONS

Where would it be located?

How do I make it?

What materials could I use?

Should I cover one side, all sides, or make a teepee?

Do I make it for one person or more than one?



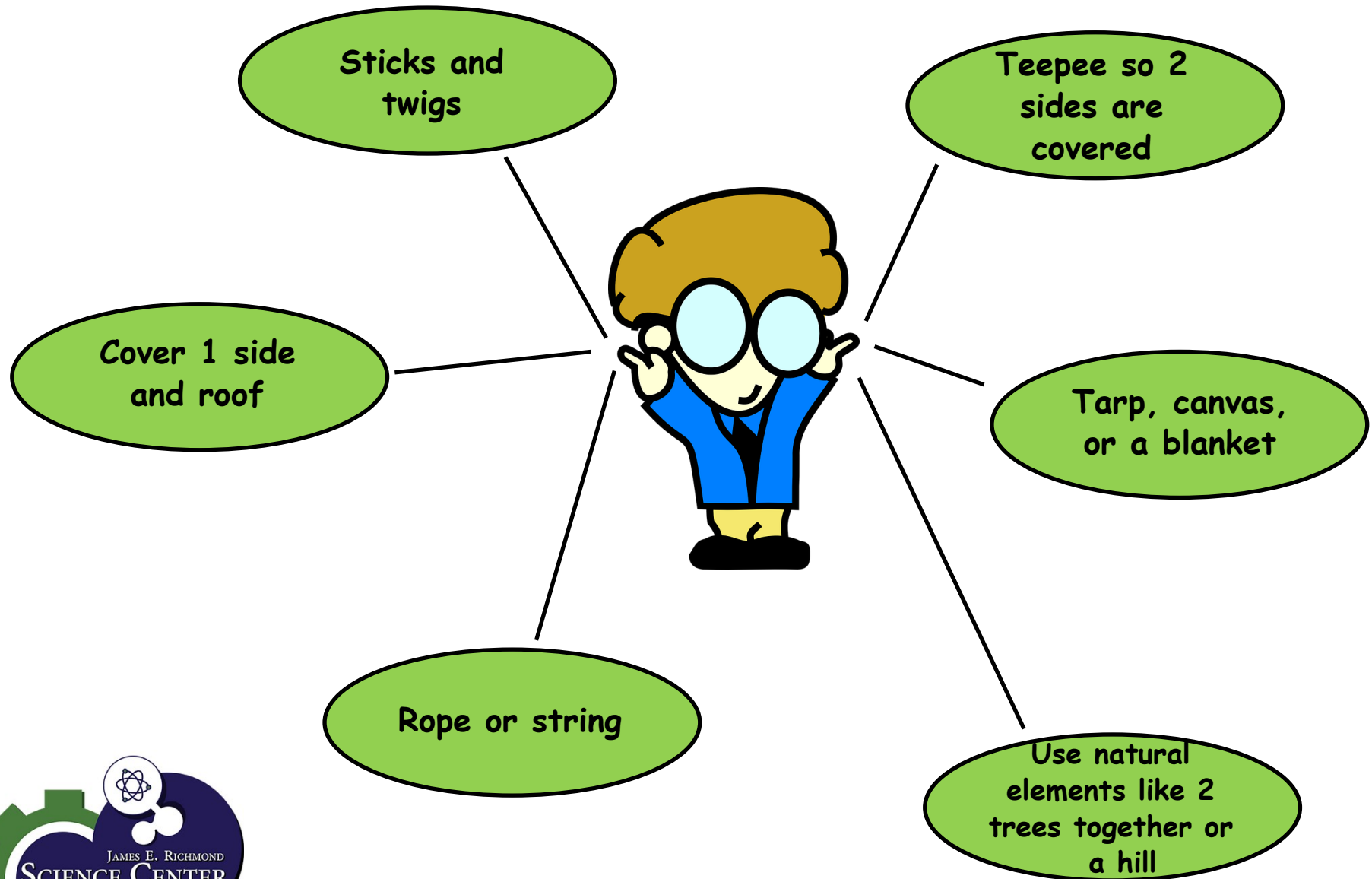
AREA TO WRITE IDEAS



You can build a *lean to*—A lean to is a temporary shelter, either supported or freestanding



Let's brainstorm ideas and materials...



Time to take notes

Engineering Notebook

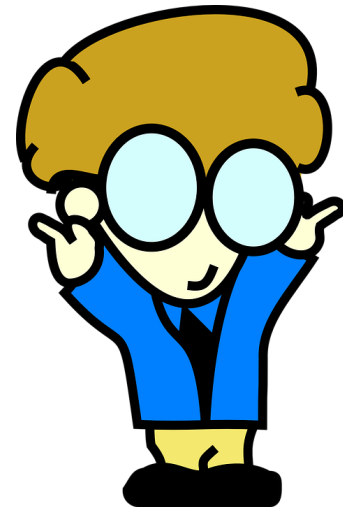
Design: _____

Materials Needed: _____

How To Construct: _____



It is important to note the engineering process is a *cycle* and can be started *anywhere* in the process/cycle.

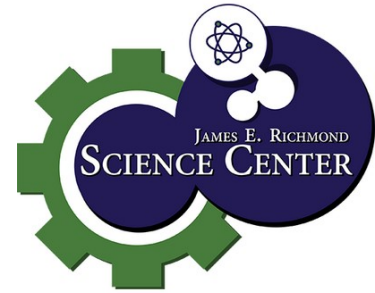


Build Your Prototype (*prototype is another word for model*)

HOW?

**Use materials around the house to layout a model
or draw a picture**

You can use the space below to illustrate your model



Now that you have your prototype it is time to see your final result—TIME TO BUILD!
Engineers are always thinking and taking notes so here are some items for you to think about:

What works? What doesn't work? How can I improve on this?
How can I adapt (change) this to fit other needs?

NOTES SECTION

Like a challenge? — practice your writing and communication skills by writing a set of instructions for others.

We at the Science Center would love to see your finished project, notes you have taken
in your engineering notebook, and/or get general feedback.

Tag us on Twitter or Facebook at James E. Richmond Science Center