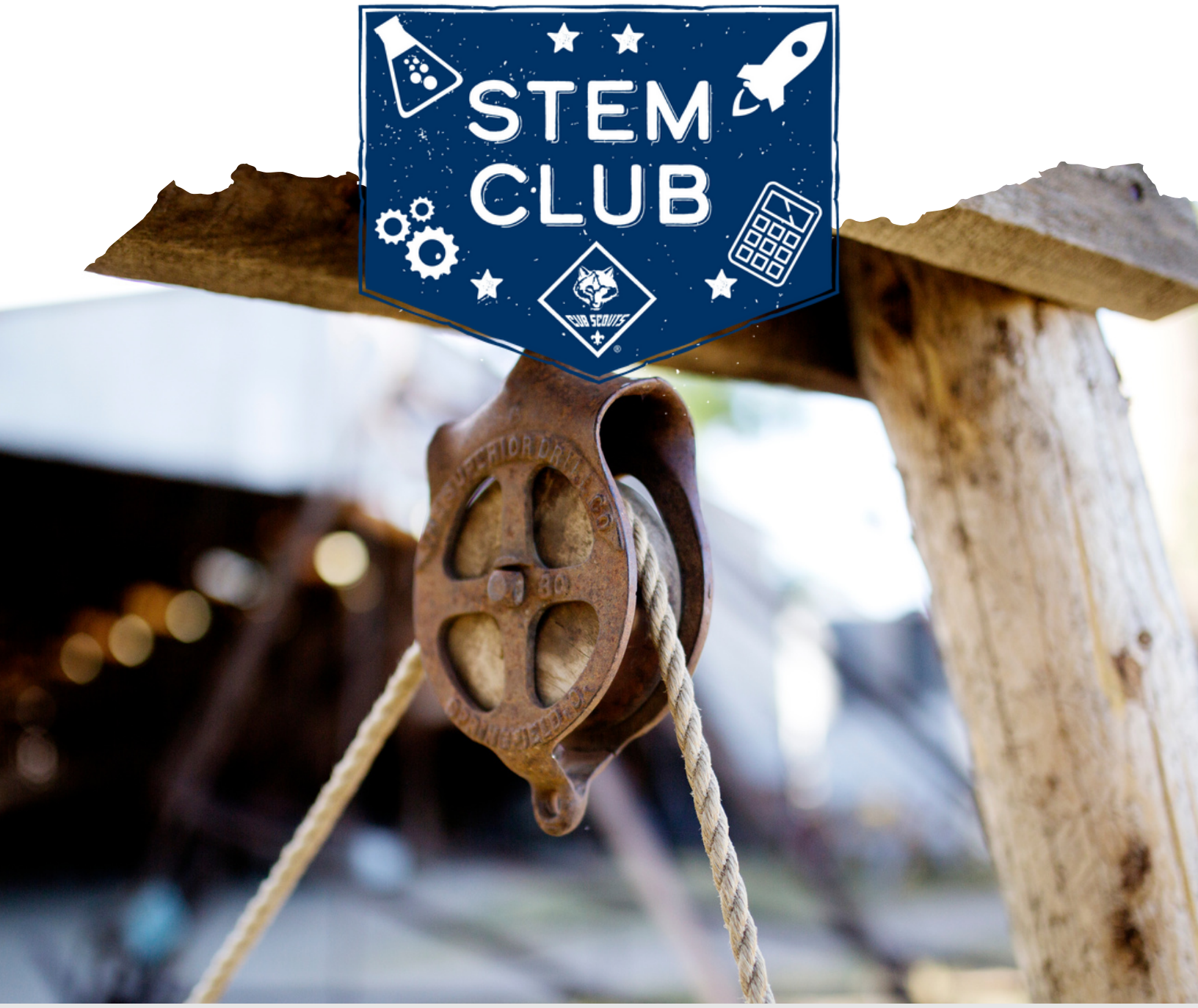
LEADER

CUB SCOUT MEETING GUIDE



WEEK 2

SWING

PRE-MEETING EMAIL

SEND 1 WEEK PRIOR + A REMINDER DAY OF:

Pack (enter #) Families,

Our next meeting is (enter date) at (enter time). Please log-in using this Zoom Code (enter zoom code). I, (enter name), will be the meeting host. Our meeting theme is Swing, and we will be building catapults today.

Please ensure scouts have the following materials ready to use during our meeting:

- Ruler
- screw on bottle or milk jug cap
- highlighter or round piece of PVC pipe
- tape
- buttons or something similar to launch
- spoon (soup size or serving size, ideally plastic)

Swing will introduce Cub Scouts to the world of simple machines called levers, the different classes of those levers, and how we use levers every single day to make our lives easier. We will also see real world examples of levers, including a couple of fun and simple catapult builds!

See you at our meeting,

(Your Name)

ZOOM MEETING TIPS

WHEN SETTING UP YOUR MEETING:

- Prior to meeting:
  - Set up your meeting and email meeting code, only email to those in your Cub Scout Pack, set up a new meeting in Zoom for each meeting, so there is a new secure code
  - Pre-assign other adults to help as co-hosts, ask them to do specific tasks (monitor chat room, help present w/assigned slides)
  - Take a look at the slide deck and script before the meeting. Read through it once or twice and think about questions your den may ask. You know them best!
- In settings turn off:
  - Annotation (prevents Scouts from writing on screen)
- At beginning of meeting
  - Mute everyone and select "do not let participants unmute themselves"
  - Make additional adults co-hosts
  - Give scouts basic chat courtesy rules: Use it only for questions and on topic conversation. Don't type your response over and over - this makes it hard to see what your friends are saying!
  - You can keep the chat open, but likely you will want to close the chat to "host only", the Scouts tend to spam the chat

MEETING SPECIFIC RESOURCES

Spoon-A-Pult Idea: www.youtube.com/watch?v=SydR_S44hhI

SLIDE DECK SCRIPT

SLIDE 1

Welcome to our Cub Scout Meeting! We will start at (enter time). This week, we will be highlighting the Swing Cub Scout NOVA Award. NOVA Awards are something fun that Cub Scouts can earn by studying various fields of STEM. STEM stands for Science, Technology, Engineering and Math. Each week we will focus on something new. We will not be completing the NOVA awards with these meetings, they are meant to be a fun introduction!

SLIDE 2

Alright, now let's get started with this week's focus, Swing! As we explore the world of Swing, we will learn about simple machines, specifically one type of simple machine, the lever. we will not only learn what a lever is, but we will learn about the three different classes of levers, and what makes them each different from the other classes of levers. We will learn about how levers are everywhere in our lives, and then we will get to build a couple of fun examples of levers, catapults! Let's get started!

SLIDE 3

First of all, What is a simple machine? We have a short video here to give us a basic idea of what a simple machine is, and what they do.
<Play Video>
Now that we know a bit more about dimple machines, let's look at a specific example, the lever.

SLIDE DECK SCRIPT

SLIDE 4

Now what is a lever? a lever has four parts. there is a bar that makes up the main part of the lever. This bar can be many things. it could be a piece of wood, or metal, or many other things. we will look at specific examples on the next slide. The next part of a lever is the Fulcrum. The fulcrum is the place where the bar rotates around. The third part of a lever is the Load, and that is whatever the lever is moving or lifting. The fourth part of a lever is the Effort. the effort is the force that is applied to the bar that is used to lift the load.

Slide 5

Here are three examples of levers. our first example is a human arm. The bar is the bones in our arm, the load is whatever we hold in our hand, the fulcrum is our elbow, and the effort is the muscles in our arm lifting the object we are holding.

The second example is a wheelbarrow. A wheelbarrow has a bar running from the handles all the way to the wheel. The fulcrum is at one end with the wheel, the load is whatever is put in the barrel, and the effort is when you lift up on the handles of the wheelbarrow.

The third example is a pair of scissors. A pair of scissors is actually two levers put together. Each lever has a bar that runs from the handle all the way to the tip of the scissors. The effort is where you squeeze the handles together to cut something. the fulcrum is the screw in the center of the scissors, and the effort is where the scissor blades cut through whatever you are trying to cut.

Now that we know about the basic parts of a lever, and have seen some examples, we will learn about the different classes (or "types") of levers. There are three different classes of levers. A class of lever is based on where the load, fulcrum, and effort are located along the bar of the lever. As we look at each class of lever, try and think of some other examples of that type of lever.

SLIDE DECK SCRIPT

Slide 6

Let's look at the first class of levers, a Class 1 Lever. A class one lever has the fulcrum put in between the force and the load. A class 1 lever is used in many places every day. a perfect example of a class one lever is the pair of scissors that we looked at on the last slide. the fulcrum is placed in between the effort and the load in a pair of scissors. One of the coolest things about a class 1 lever is that, as long as you don't change how far the load is from the fulcrum, the further away the force is from the fulcrum, the easier it is to move the load.

Slide 7

Now let's look at the second class of levers, a Class 2 Lever. A class 2 lever has the fulcrum all the way at one end, and then the load is in between the force and the fulcrum. As with the class 1 lever, the class 2 lever is also used all the time in the world today. An example of a Class 2 lever is a wheelbarrow, as we looked at earlier. Similar to the class 1 lever, if you have a class 2 lever, and do not move the load further way from the fulcrum, the further the effort is moved away from the fulcrum, the easier it will e to move the load. That is part of why the wheelbarrow handles are as long as they are.

SLIDE 8

Now let's look at Class 3 Levers. A class 3 lever is similar to the class 2 lever, but instead of the load being in between the fulcrum and the force, the force is in between the load and the fulcrum. An example of a class 3 lever is a human arm. This can be a little bit confusing, because it looks like the effort (the muscles pulling on your arm) is on the other side of the fulcrum from the load. That would make the arm a class 1 lever. However, when you look closer, it turns out that the muscles are pulling on the bone in your forearm, meaning that the actual force is applied in between the load (in your hand) and the fulcrum (your elbow).

SLIDE DECK SCRIPT

SLIDE 9

Now that we know the differences between the three different classes of levers, Let's look at three new examples and try to figure out what type of lever each one is. The easiest way to figure out what class of lever each object is will be to identify all the parts of the lever. Let's start with the Catapult.

Use this for hints wile they figure it out.

Fulcrum: at the base of the catapult arm
Effort: at the middle of the arm where the rope attaches
Load: at the end of the arm in the basket
Catapult is a Class 3 Lever

Now let's look at the Seesaw. what class of lever is it?

Use this for hints wile they figure it out.

Fulcrum: at the center
Effort: at each end. the effort will be whichever person is at the "top" of the seesaw
Load: same as the effort. at each end. the load will be whoever is at the "bottom" of the seesaw
Seesaw is a class 1 lever

Now let's look at the Nutcracker. what class of lever is it?

Use this for hints wile they figure it out.

Fulcrum: at the end away from the handle
Effort: the ends of the handle that you use squeeze
Load: the place where the nut is put to be cracked
Nutcracker is a class 2 lever

SLIDE DECK SCRIPT

SLIDE 10

Now let's get started with our builds! We will be making two different types of catapults today, and they will even be different classes of lever. ! will give everyone a minute to make sure that we all have our materials that are needed for the builds. We will start with the button and coin launcher, then we will make the spoon-a-pult.

SLIDE 11

The Button launcher is the first catapult, and it's a pretty easy build. grab your ruler and your bottle cap. take some tape and fold it in half so the side that isn't sticky is inside, and the sticky side is on the outside on the tow and bottom. Now put that piece of tape on one end of the ruler, then put the bottle cap on top of the tape. Next, but your highlighter, or pvc pipe, or other round object underneath the ruler. Now your catapult is done! put your button into the bottle cap, and then quickly hit the other end of the catapult. your button will go flying! You can adjust the angle that your button flies at by changing where you put your fulcrum under the ruler. Can you tell what kind of lever this type of catapult is? ***Class 1***

SLIDE 12

The Spoon-A-Pult is an even easier catapult to make! Grab your spoon, and hold it at the end of the handle. now, but your button into the spoon. you now have your catapult ready to go. bend the spoon backwards, and then let it go and watch your button fly! This catapult is a bit harder to tell which lever class it is. Can you tell? ***Class 3***

This is a class 3 lever with the fulcrum at the bottom where you are holding the spoon handle, the load being the button, and the effort *not* being your finger bulling the spoon back, but *actually* the elastic property of the plastic in the handle just above where you are holding it pulling the spoon back to it's original position after you release it.

SLIDE DECK SCRIPT

SLIDE 13

Thanks for joining us today!


BOY SCOUTS
OF AMERICA
CASCADE PACIFIC COUNCIL