

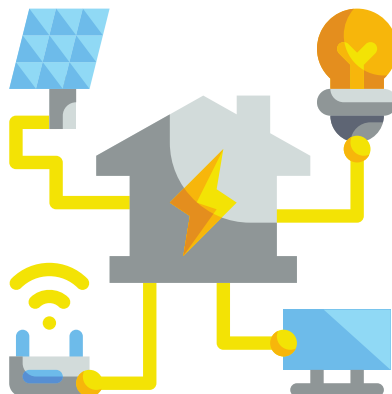
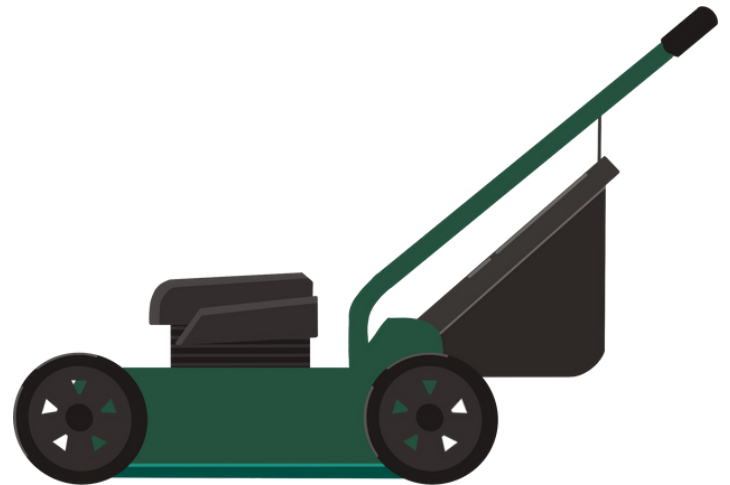
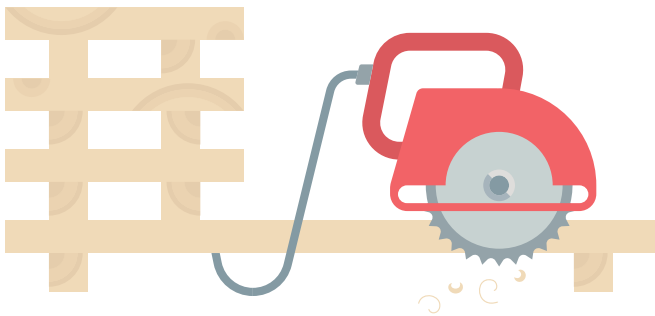
CLOVERBUDDIES

**A 4-H EXPLORATION ACTIVITY SERIES FOR
CLOVERBUD MEMBERS**

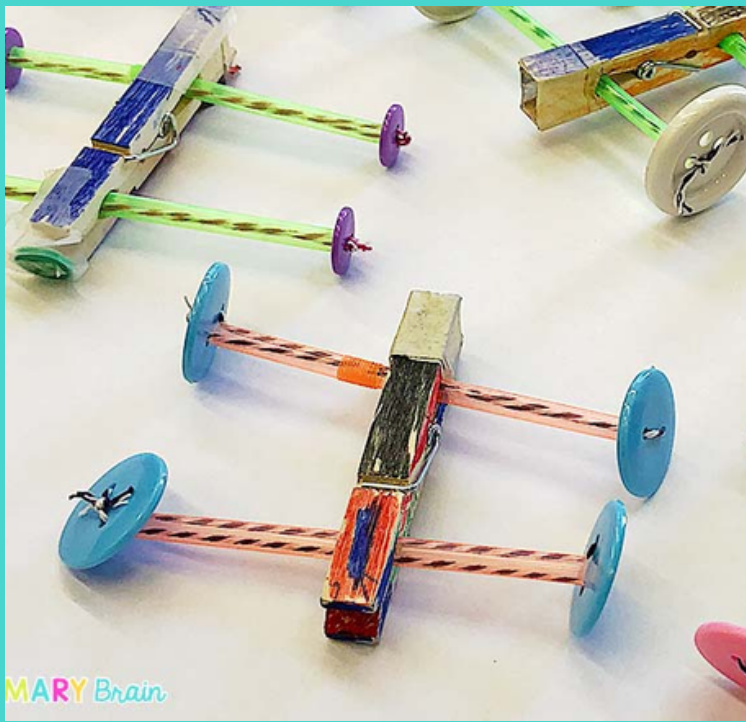


AUGUST 2023

PROJECT EXPLORATION: MECHANICAL SCIENCES



WHEEL AND AXEL



Scale Models is such a fun part of Mechanical Sciences! You learn to assemble and create much smaller versions of trains, carts, and more. Follow these instructions to learn how to build your very own wheel and axel craft - which is a simple machine that has a "wheel" and a smaller axle that uses the two parts to rotate together to transfer force from one part to the other

MATERIALS:

- Straws
- Buttons
- String
- Clothespin
- Decoration materials

INSTRUCTIONS:

1. Make your wheels by threading the string through the button holes so that the thread comes out the back side of each button.
2. Cut your straw into two pieces into 2" pieces (you'll need 2 pieces per car).
3. Then, to make your first axle, put the string through the straw and tie off a button to the other side. Repeat these steps to make your second axle.
4. To finish your race cars, use the clothespin to clamp onto your first axle. Then slide the second axle through the other side of the clothespin and use a piece of tape to hold it in place.
5. Finally you can decorate your car with markers, paint, glitter - whatever you want! Then try them out and see how well they move.

WHY DO YOU THINK THIS HAPPENED?

Compare your cars and talk about why you think one works better than the other?
How could you make your car even better?

Source: <https://theprimarybrain.com/stem%20activities/2018/03/06/Wheel-and-Axle-Simple-Machines/>

FINDING ELECTRICITY

Electricity is another popular 4-H project in the Mechanical Sciences. Electricity is an important part of all our lives - it's what gives us light, helps cook our food and keeps stores and factories working. Complete the word search below to find all of the electricity related words - see if you know what each word means!

H	I	C	S	L	O	B	M	Y	S	N	S	C	O
E	S	U	O	C	C	A	M	O	R	Z	S	C	M
T	A	R	L	E	L	L	A	R	A	P	H	E	L
B	T	R	S	L	U	M	A	I	N	S	U	W	A
D	D	E	G	L	S	S	B	E	B	H	E	O	T
T	I	N	S	E	E	U	A	T	H	G	I	R	B
L	M	T	I	A	T	B	T	H	C	T	I	W	S
I	T	R	C	L	R	E	T	L	T	N	U	S	T
T	E	K	C	O	S	S	E	W	I	R	E	S	I
S	R	L	A	M	O	H	R	E	T	T	S	C	U
P	O	R	R	A	L	O	Y	Y	T	S	L	I	C
L	T	M	G	B	U	Z	Z	E	R	S	N	Y	R
U	O	L	I	G	H	T	B	U	L	B	D	U	I
G	M	R	O	T	A	L	U	S	N	I	W	R	C

CURRENT
LIGHT BULB
MAINS

BUZZER
SYMBOLS
BATTERY

DIM
CIRCUIT
PARALLEL

SERIES
SOCKET
WIRES

INSULATOR
BRIGHT
PLUG

CELL
SWITCH
MOTOR

Bicycle Basics

Bicycling is an exciting 4-H project in Mechanical Sciences that you can learn more about after being a Cloverbud! Whether you have never ridden a bike, have a trike or just got your training wheels off, bicycle safety is one of the most important things to know about bicycling. Read the bicycling basic safety tip below and draw a line to the correct term to the tip it's referring to!

These should be checked for air.

Check to make sure these are working correctly.

This should be moved to the correct height.

Wear this to protect your head.

Use this arm to make biking signals.

Wear this type of clothing so you are easily seen.

Do this to show drivers what you plan to do.

Avoid crashing your bike or you will get one of these.

Bikers should ride on this side of the road,

You should look this way before entering the street.

Bright / Reflective

Injury

Seat

Left

Right

Both

Signal

Brakes

Helmet

Tires

WOODWORKING TINKER BOTS

Woodworking is a super fun 4-H project within the Mechanical Sciences. There is something so satisfying about making something with your own two hands. Did you know not every woodworking project requires machines or lots of tools? Follow the instructions below to make your own wooden tinker bot!

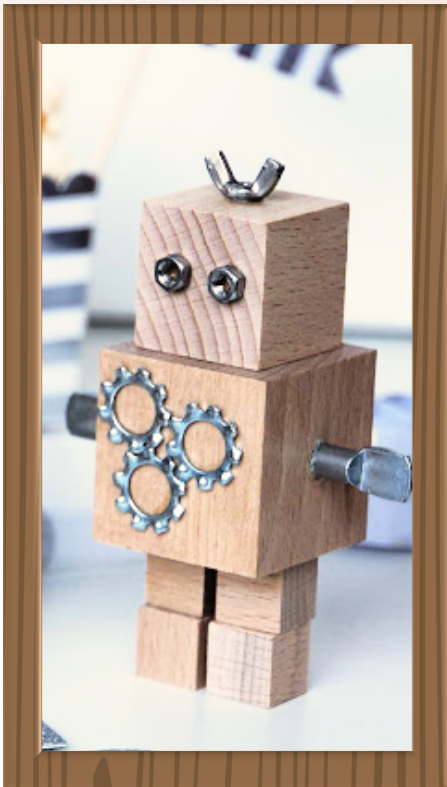
MATERIALS:

- Small leftover wooden block scraps of any shape!
- Leftover bolts, nuts, screws etc.
- Drill
- Screwdriver
- Glue (for wood and metal)
- Small brushes
- And Adult to help!



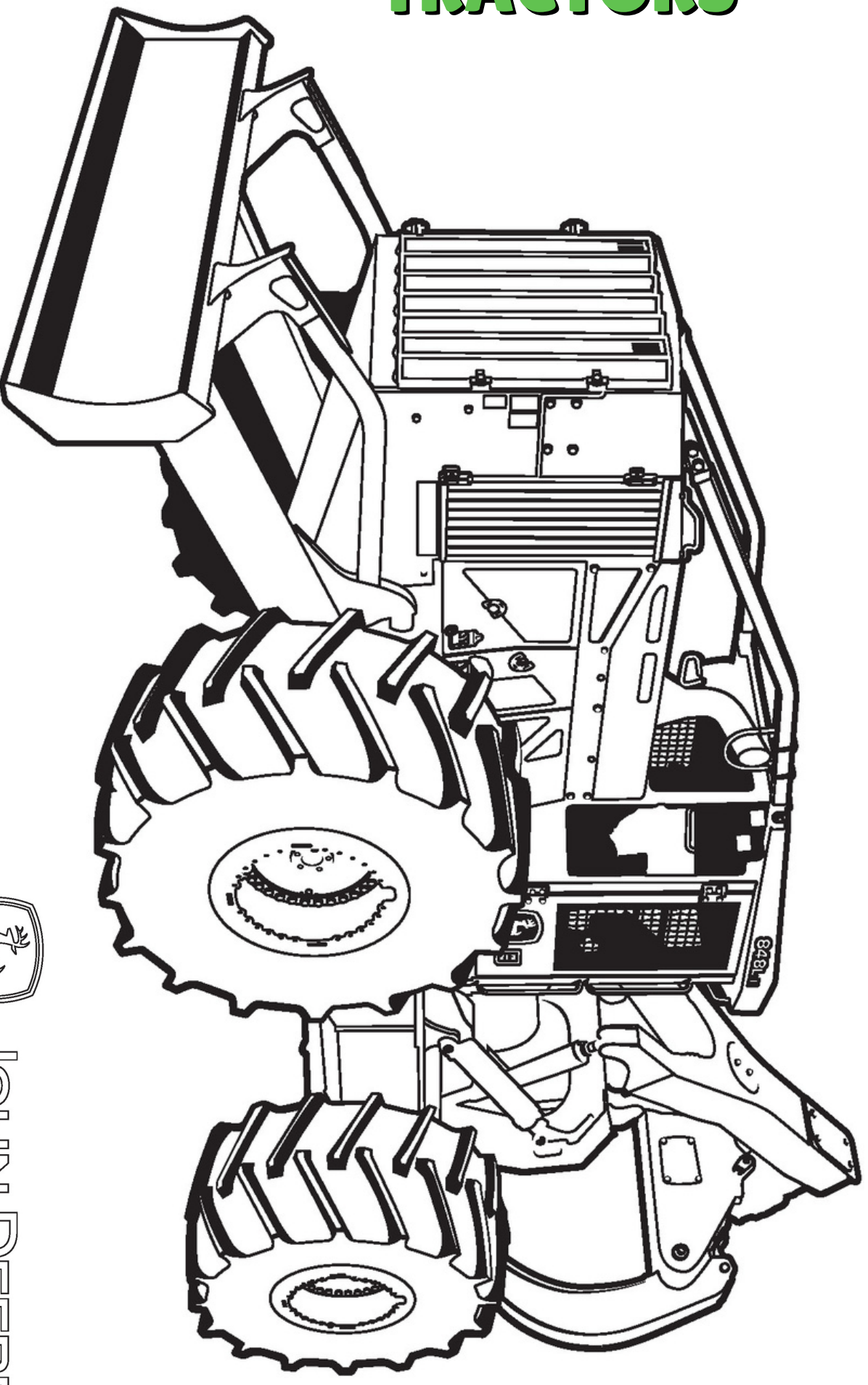
INSTRUCTIONS:

1. Sort through your pieces of wood and metal to find the best pieces for the head, body, arms, legs, face, hair and more!
2. Once you have everything picked out, decide how you'd like to put your tinker bot together - do you want your pieces glued? Or do you want them attached with screws? Do you want the head to be able to turn, or be still?
3. Have your adult help you put your tinker bot together the way you want it to look!
4. You can also decorate your tinker bot with paint, markers, and other craft materials.



TRACTORS

Tractors and other Agricultural Machinery are a big part of the Mechanical Sciences Project. Once you're older and can join Tractors 1, you will get to learn and identify parts of agricultural machinery, understand the basics of maintenance, learn about different fuels and engine cooling systems, research different safety features, and learn safety rules. Color in the picture below of a skidder and see if you know what this is used for.



JOHN DEERE

FINISH THAT MACHINE

The Small Engines 4-H project can be a lot of fun. If you enjoy getting your hands dirty or figuring out how things work, this is the project for you! Look at the machines and tools below that have small engines in them. These engines are what make machines run. Can you finish the other half of the picture for each of them? Do you know what each one is used for? Give your best guess!

HAND DRILL

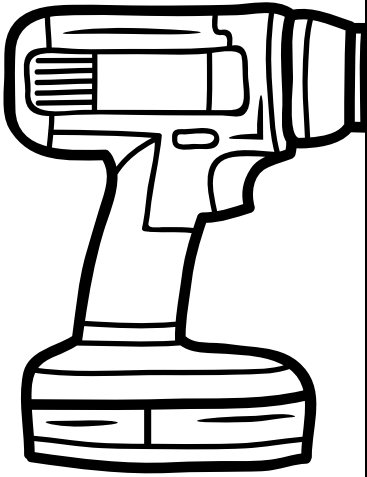
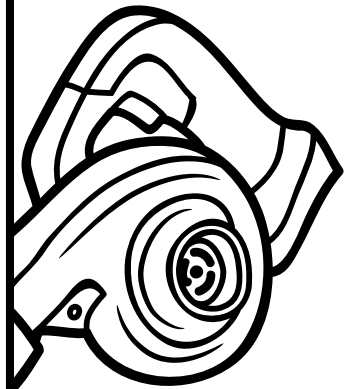
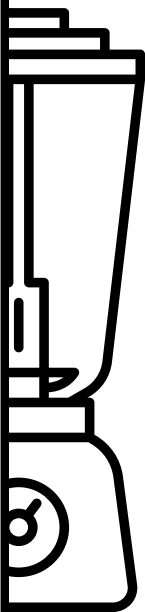
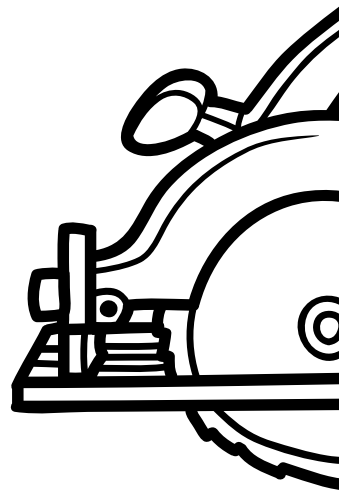


TABLE SAW



BLENDER

LEAF BLOWER

YOUR FAIR PROJECT!

Let's make a... **HOME-BUILT ELECTRICAL ITEM**

(Dept 17, Class A, Item 34)

Welcome to a new section of Cloverbuddies, where we share how to complete one fair project for each area highlighted. It's not required, but it's fun!



A home-built electrical item is something you use electronic elements to create something new. For this example you are using batteries, lights, and wire to make a light up bug!

This can be a fair exhibit! Visit www.lacrosseinterstatefair.com after June 1st, and you can enter this exhibit on the registration.

- Select Dept 17 for Cloverbuds, Class A for Cloverbud, and Item 34, Home-built electrical item.
- Youth who exhibit in the Cloverbud department participate in face-to-face judging at the fair. The judge will ask age-appropriate questions of the youth to determine their knowledge and enjoyment of the project they completed. Cloverbuds get special Cloverbud ribbons at the fair.
- For bonus points with your judge, explain why you chose this country and any other cool information you found out!

Source for activity information: <https://www.steampoweredfamily.com/circuit-bugs/>

YOUR FAIR PROJECT!

Let's make a... **HOME-BUILT ELECTRICAL ITEM**

(Dept 17, Class A, Item 34)

MATERIALS NEEDED:

- 2 LED Diode Lights
- Pipecleaners
- Scissors
- Insulated Copper Magnet Wire
- Batteries - CR2032 3V
- And Adult to help!
- Electrical Tape
- Clothespins
- Popsicle Sticks
- Wire Strippers

INSTRUCTIONS:

1. Make sure your lights work by testing them with a battery.
2. Cut your wire - start by measuring the length of the clothespin twice - you will need 4 lengths of wire. Now use a scissors to strip about 2-3cm on both sides of your pieces of wire.
3. Attach the wires - wrap the wire around the positive pin of each LED, then take the loose ends and twist them together. Repeat with the negative pin on both LEDs.
4. Test your circuits - touch your sets of twisted wires to the battery to make sure it's working. (Make sure to do this many times during the process!)
5. Mount the Circuit Bug Eyes - attach the LEDs to the legs of the clothespin by having each leg on either side of the wood. You can tape them with electrical tape for extra security!
6. Design and decorate - use whatever decorations you'd like to decorate your bug - pipe cleaners, paint, markers, whatever you want!

TAKE A CLOSER LOOK

- Why do you think your lights work and don't work sometimes?
- How do you think you could make your electric bug even better?



JULY ANSWER KEYS

Answers to all Cloverbuddies activities will appear on the back cover of the following month's issue. For answers to this issue, watch for next month's installment of Cloverbuddies!

there was an error in this for last month - here is the corrected layout with the right answers!



WORD BANK:

DOBRY RANO (Czech)
GOEDENDAG (Dutch)
GUTEN TAG (German)
HEJ (Swedish)
HOLA (Spanish)
KONNICHIWA (Japanese)
JAMBO (Swahili)

ANN NYEONG HA SE YO (Korean)
ALOHA (Hawaiian)
BOM DIA (Portuguese)
BON GIORNO (Italian)
BONJOUR (French)
CHAO (Vietnamese)
DIA DUIT (Irish)

MARHABAH (Arabic)
NAMASTE (Hindu)
NI HAO (Chinese)
SALAM (Arabic)
SHALOM (Hungarian)
YIA SOU (Greek)
ZDRAVSTVUITE (Russian)