



Teacher's Guide for: Electric Guitar

Note: All activities in this document should be performed with adult supervision. Likewise, common sense and care are essential to the conduct of any and all activities, whether described in this document or otherwise. Parents or guardians should supervise children. Rock-it Science assumes no responsibility for any injuries or damages arising from any activities.

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Title Page of Video

(Numbers in the text are **time codes**, so you can refer back to the video.)

[00:03:09]

Electric Guitar

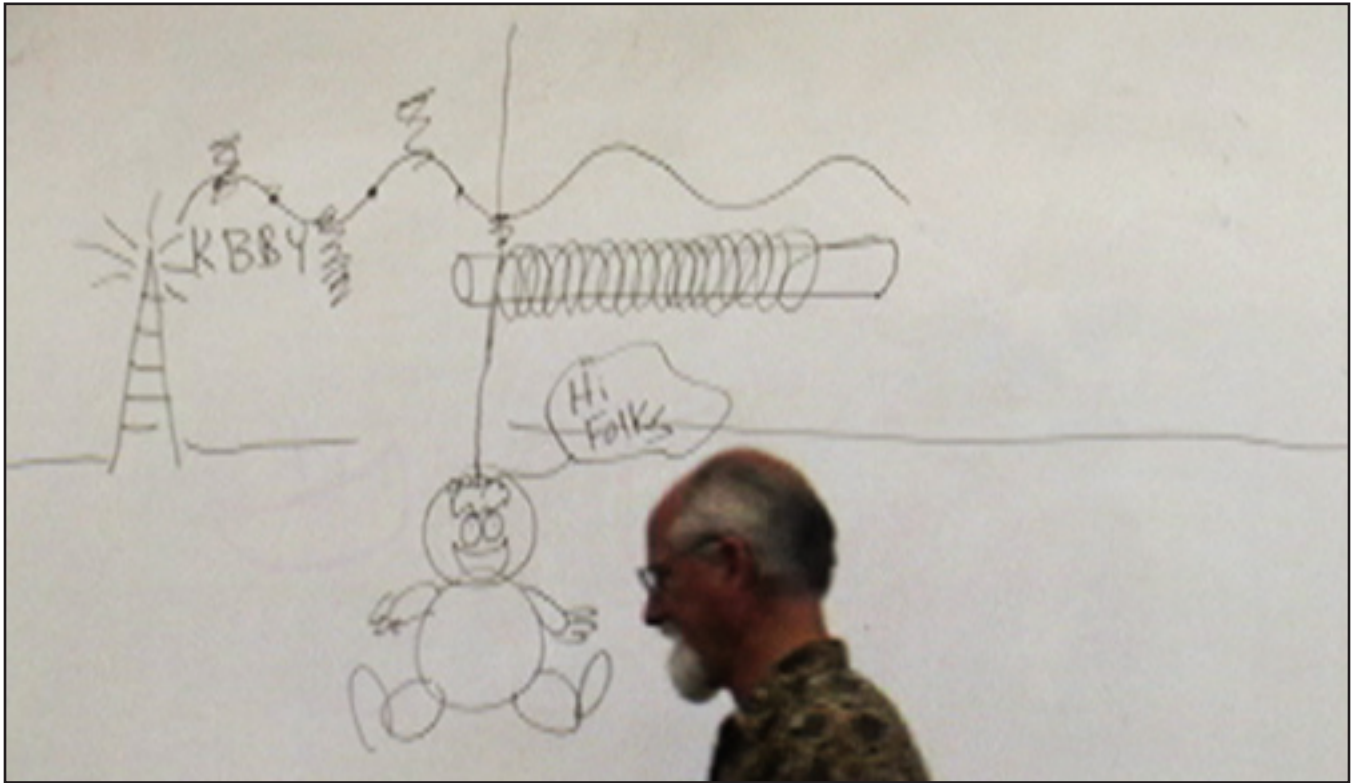
filmed June 2011

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Intro Quick Recap:



- There's a baby with just one hair growing out of his head.
- The hair is made of metal, and it grows into the baby's brain, so it's like an antenna.
- There's a radio station, KBBY, and the baby can pick up the broadcast through his special hair.
- The baby wants to make the station come in louder.
- If he wanted to, he could grow the hair taller and pick up more radio stations.
- Or he could take his hair and wrap it around something, round and round, and that would make it a bit louder.
- If the baby puts a steel bar through the coil, it gets really loud. He can open his mouth and let the radio play through his mouth.
- When electrons get excited, you have a radio signal.
- Draw a sine curve. Show the places where the electrons get loud (the peaks and valleys) and where they're just sleeping (the midpoints).
- Whenever electrons move, they can be collected by wires, and the wires can go into something like the baby's brain.
- We're going to give you an artificial baby brain. It's got wires connected, it's got a coil of wire like the baby's coil, and it will allow you to hear things that are out in the air that nobody else can hear.

Experiment Quick Recap: "Electric Guitar"

- The artificial baby brain is called an amplifier. It has a wire on it. At the end there's a chunk of metal with a wire wrapped around it (the pickup coil).
- Turn on the volume knob full blast. It should hum a little bit.
- Teacher turns his back on the students for a moment so they can't see what he's doing, and he holds the pickup coil directly in front of and close to the amplifier, so it emits some high-pitched beeps. Tell students to try to make this annoying noise.
- Demonstrate how feedback happens when a small sound from the speaker gets amplified each time it comes around.
- Students work in groups of two and share an amplifier. If the noise bothers them, they can use earmuffs.
- Students take the pickup coil and tap on it, rub it on the table, on their fingers, etc., and see if they can make noise.
- Pass out a small disc magnet to each group so they can see if the amplifier works better or worse with it.
- After a few minutes, have students turn off their amplifiers.
- Instructor places a number of items around the room, and the students will examine each one with their amplifiers to see what kinds of sounds they get. The items include:
 - An electric motor hooked to a battery.
 - A hand crank radio with a dead battery.
 - A cassette player.
 - A hand-crank generator with a fan attached.
 - An electric guitar that's not hooked up to anything.
 - An acoustic guitar.
 - A laptop computer. Caution students not to rub the screen.
- After several minutes of testing the various items, students return to their seats and turn off their amplifiers.
- Ask students if putting the magnet in a certain place made it more sensitive. (Putting it on the back of the pickup coil makes it very sensitive.)
- Show students how the amplifier can be used to get a loud sound out of the electric guitar by holding the pickup coil next to the strings and plucking them.
- On the laptop, show how it makes different sounds when you press the keys, or when you go over the power supply, the CPU, or the memory banks.



Amplifier with pickup coil.

Experiment Quick Recap (cont.): "Electric Guitar"

- With the electric motor, show how you can hear the electricity in the wires. There are coils in the motor just like the ones in the pickup coil, and the electricity in them pulses so it gets loud. If there's an electric motor in your house, you can use the pickup coil to find it.
- If you're an alien, we should be able to hear your brain. (Place coil on student's head to see if it makes noise.)
- Have students unplug the pickup coil from their amplifier and replace it with a wire that has an audio jack on one end and two alligator clips on the other.
- Give each group a speaker and have them attach the alligator clips to it.
- Have them tap very gently on the diaphragm of the speaker to hear the sound.
- Then have students take turns talking into the speaker while the other listens through the amplifier.



Talking into the speakers.

Equipment List: "Electric Guitar"

Items needed for Instructor:

- Mini-amplifier (Radio Shack model #277-1008)
- Pickup coil with 3.5mm microphone input (similar to MCM Electronics part #36-010)
- Battery, 9-volt, for amplifier
- Speaker (from old radio or speaker system)
- Insulated cable with audio jack at one end and 2 alligator clips on the other end
- Various items for testing:
 - Small electric motor connected to a 6-volt lantern battery with insulated wires and alligator clips.
 - Hand crank radio with a dead battery.
 - Cassette player.
 - Hand-crank generator and a small fan connected with insulated wires and alligator clips.
 - Electric guitar that's not hooked up to anything.
 - Acoustic guitar.
 - Laptop computer.

Items needed for Students:

Consumables (per 2 students):

- Battery, 9-volt, for amplifiers
- Other (per 2 students):
- Mini-amplifier (Radio Shack model #277-1008)
- Pickup coil with 3.5mm microphone input (similar to MCM Electronics part #36-010)
- Speaker (from old radio or speaker system)
- Insulated cable with audio jack at one end and 2 alligator clips on the other end
- Magnet, disc, 1/2"
- Earmuffs

Prep Work:

- Check batteries in amplifiers.
- Test amplifiers & pickup coils to make sure they work.
- Boot up laptop.

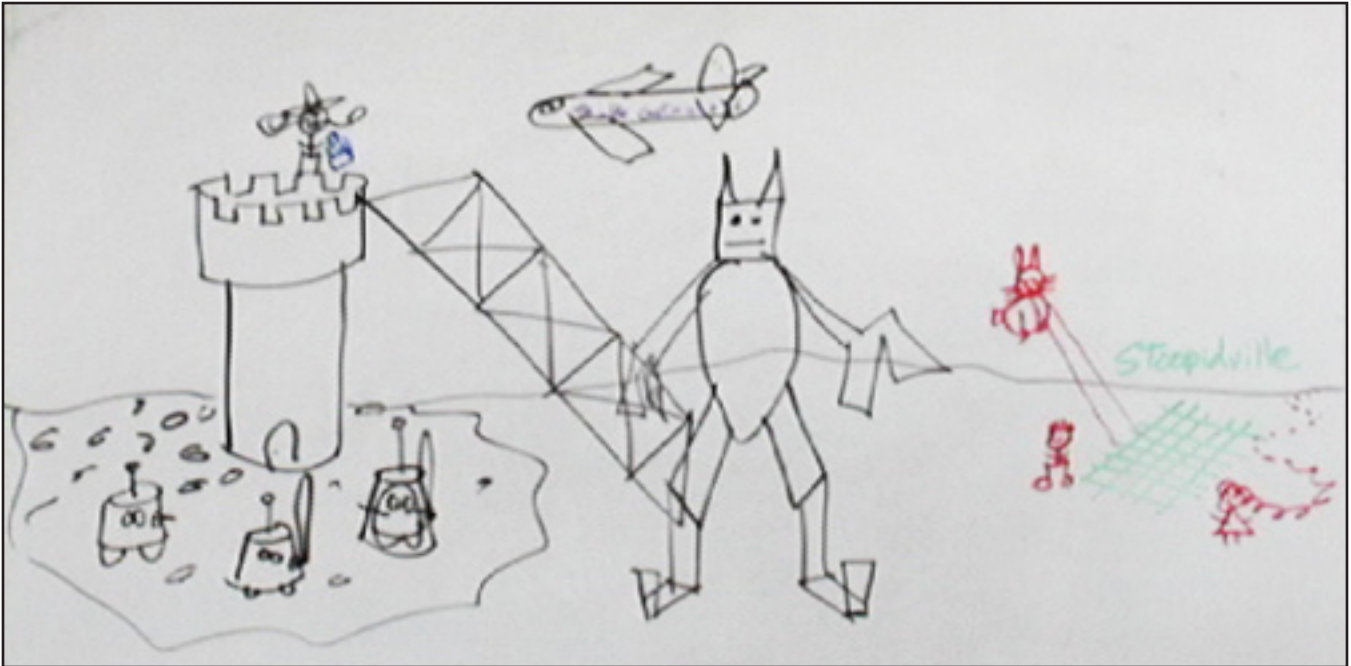


Amplifier with pickup coil.



Connecting speaker to amplifier with alligator clips.

Story Quick Recap: "Evil Mister Fred's Transformer Robot"



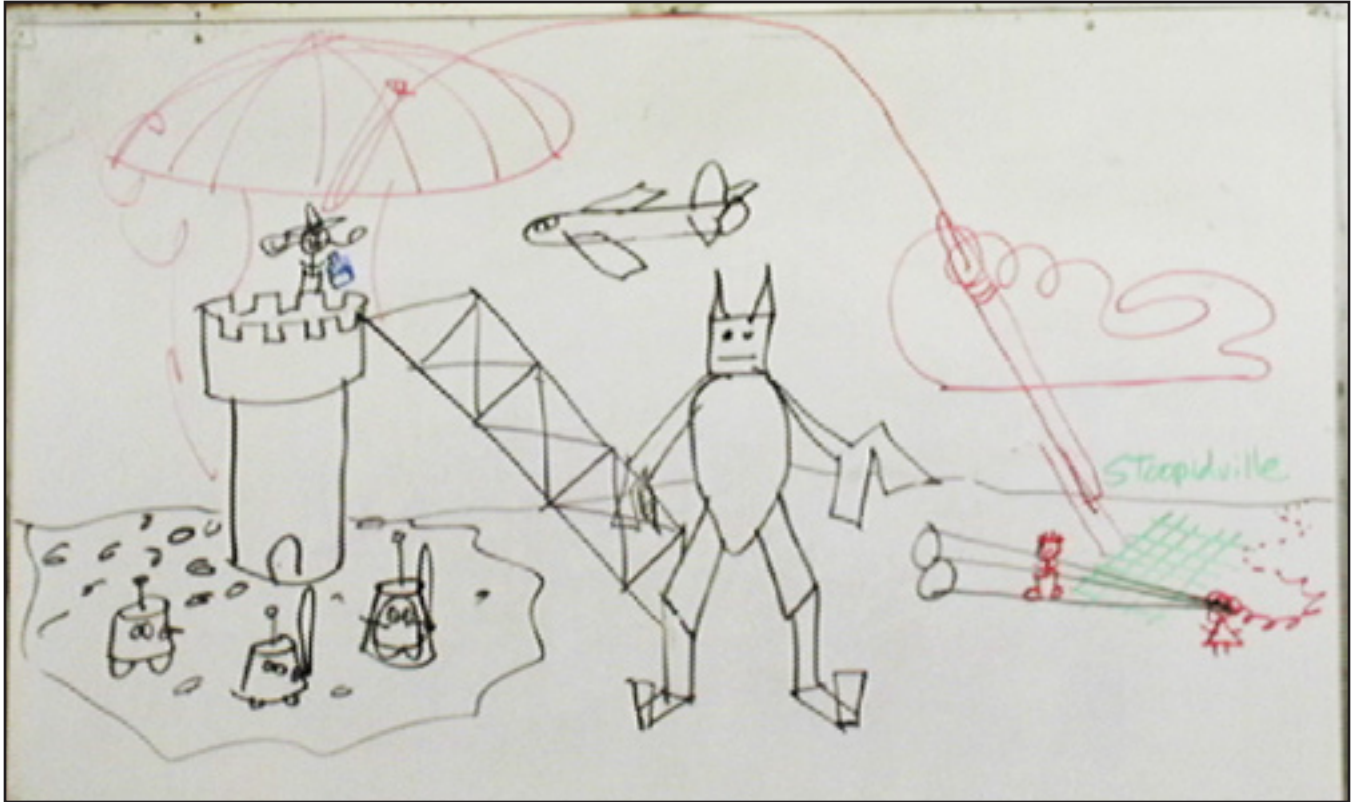
Part 1:

- Evil Mister Fred wants to turn his minions into robots. He puts an upside-down garbage can on top of each one with a hole in the side for the mustache to stick out so they can hold their baseball bats.
- He sticks a nail in the top of their heads for an antenna.
- To give them artificial intelligence, orders fish oil from the Acme Store of Everything.
- He tries it on himself, but it tastes horrible. So he gives it to a minion, who likes the taste.
- He gives the minion about ten jars of fish oil, and the minion gets very smart, but it only lasts for a few seconds.
- Awhile later, Evil Mister Fred discovers that the minion can read his thoughts, so he'll be able to give the minion instructions with his mind. He feeds fish oil to all the minions. When he thinks about having the minions walk in a certain direction, they all walk that way. They do anything he thinks about.
- Then Evil Mister Fred thinks about having an ice cream cone, and one of the minions turns into an ice cream cone. Then he wished he had a bridge from the top of his castle to the ground, and a bunch of minions turned into a bridge.
- Then he wished for a giant transformer that could turn into a jet aircraft, an army tank, or an atomic bomb. And the transformer thing appeared. Evil Mister Fred told it to change into a jet aircraft, and it did. It hovered in the air.

Story Quick Recap (cont.): *“Evil Mister Fred's Transformer Robot”*

- Meanwhile, in Stupidville, the people are sitting around talking about how smart they are, and how they can stop anything Evil Mister Fred does. Jack and Jill warn them that he might do something they can't stop.
 - Just then the giant robot came crashing along, leaving holes in the ground and shooting things with laser beam eyes.
 - At first, the people thought they were imagining it. But then one of their houses went up in flames. So they called Jack and Jill.
 - Then the robot turned into a little bunny rabbit that was floating in midair, shooting laser beams out of its eyes.
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Story Quick Recap (cont.)



Ending:

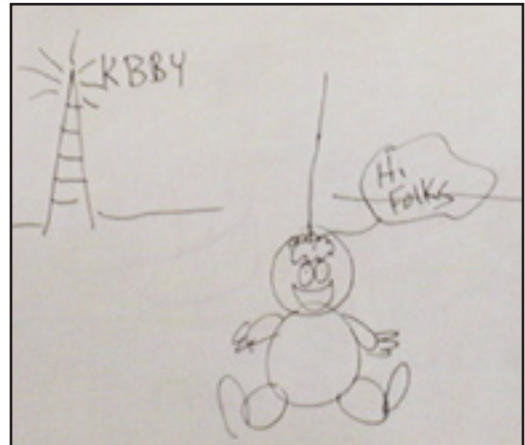
- Jill had a pair of binoculars and was watching Evil Mister Fred. She noticed that when his mouth moved, the transformer would change into different shapes and do different things.
- Jack figured out that the transformer was controlled by thought power.
- He told all the people in Stupidville to think about roller coasters. They concentrated on roller coasters, and the transformer turned into a roller coaster.
- Then they thought about a giant marshmallow, and it turned into a giant marshmallow and landed on Stupidville.
- When Evil Mister Fred realized what was happening, he got really angry, so the transformer turned into a nuclear missile.
- It took off into the air before Jack and Jill could turn it into something else.
- The missile went into the air and came down on Evil Mister Fred and formed a mushroom cloud.

Transcript: Intro

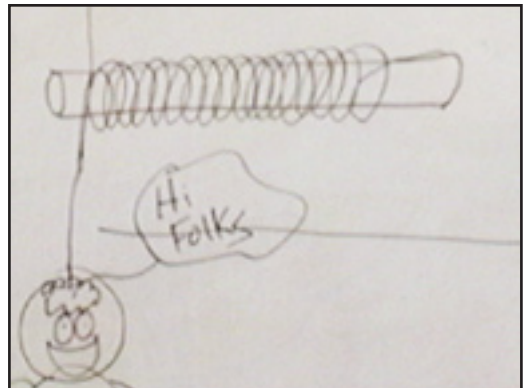
[00:11] Let's suppose that you have one hair growing out of your head. [Student: You could be a baby.] You could. Yes. You could be a baby. There -- a baby with one hair growing out of his head. It's not an ordinary hair. This hair is made out of metal, so this baby can do cool things with it. And the hair grows into the baby's brain. So it's like an antenna.

So out here on the hillside there's radio station K-Baby [KBBY]. And it's broadcasting a radio signal. Well, most people can't hear the K-Baby radio station. Baby's got this metal thing growing out of his head. It's like an antenna, and he can pick up the radio sound in his head. [Writes a thought balloon over the baby:] "Hi, Folks."

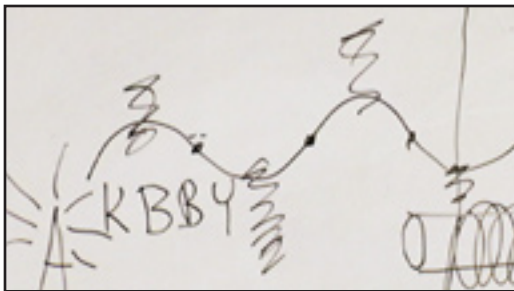
But it's really quiet, and Baby doesn't like it when people make noise, because he can hardly hear his radio station. And he wants the radio signal to be louder. If he wanted to, he could grow the hair taller and pick up more radio stations. Or he could take his hair and wrap it around something -- round, and round, and round, and round, and round, and round, and round, and round, and round, and round, and round, like that, and that would make it a little bit louder. But then Baby discovers that if he puts a steel bar through it, then he gets the radio signal really loud. In fact, it's so loud, all he has to do is open his mouth and the radio plays through his mouth. He can be the entire radio station.



Baby with one metal hair can hear the radio broadcast in his head.



Baby's hair wrapped around a steel bar makes the radio signal really loud.



Radio signal is loud at the top and bottom of the curve, and sleeping at the midpoints.

Well, there's electrons that get excited when you have a radio signal. They're going like [draws a sine curve]. Some places they're going really loud. They're going zzzzzttt! Right here, they're just sitting there sleeping. And down here they're really loud. And here they're sleeping. And here they're really loud. And here they're really loud, right where Baby is. And here they're sleeping. And whenever electrons move, they can be collected by wires. And the wires can go into something like a Baby brain.

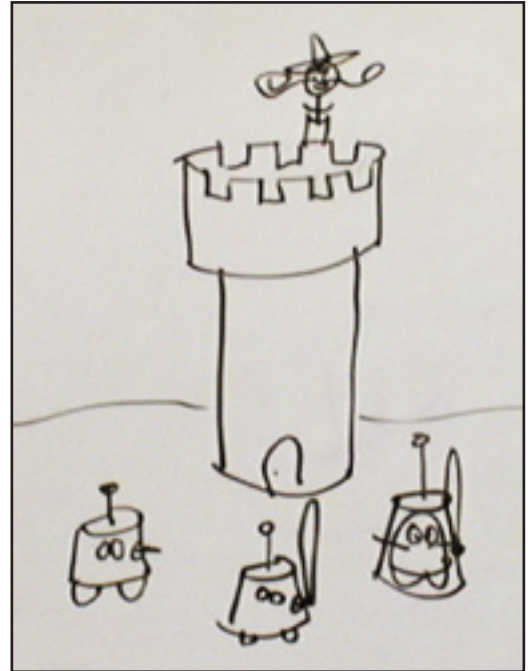
Well, since you guys aren't babies anymore, we have to give you artificial baby brains today. You can buy them at Radio Shack stores. Baby brains. And it's got some wires connected. It's got a coil of wire, like Baby's coil, on it. This will allow you to hear things that are out in the air that nobody else can hear. But before we do that, we need a crazy story.

Story: "Evil Mister Fred's Transformer Robot"

[03:25] Let's see, Evil Mister Fred is kind of disgusted with his minions, because they don't make a very good army. All they've got are baseball bats. And they're really short, they can't run fast, they're not smart. So he decided he was going to turn his minions into robots. More control that way.

And he read a book about robots. And robots have motors to make them work, and they have all kinds of stuff. And the hardest part to make a good robot is just to make it move around. Well, that part's done! Minions can already move. So all he has to do is make them smart and kind of give them some armor, because they're soft and squishy. [Student: Artificial intelligence.] Yes, he needs artificial intelligence. He hasn't got any of his own, so he's got to find some artificial intelligence.

So he has to make the minions a little bit stronger. So he called the Acme Store of Everything and bought some metal garbage cans and poked holes in them and set them on his minions. And now his minions have got like their own suit of armor. They can bang on these things, make a lot of noise, they can run around. They love this. You can see a little bit of minion toes. I guess there has to be a hole in the side so the mustache can stick out and grab the baseball bat, like that. And then you need an antenna, so he stuck a nail in the top. And he just drove the nail into their head, because they've got strong heads.



Evil Mister Fred and minion robots.

So now he's got several hundred minion warriors. But the artificial part hasn't been put into them. So he has to call the Acme Store of Everything and buy some Brain Drink. You drink this stuff and it makes you smart. So he bought a bottle of fish oil, and he was told that if you drink fish oil you'll get smarter. So Evil Mister Fred said, "Well, I'd better try it on myself." He drank the fish oil and it made him throw up -- blahhhh -- tasted horrible, like cod liver oil or something. He says, "Well, it doesn't work on me. I'm already smart. Let's try it on a minion."



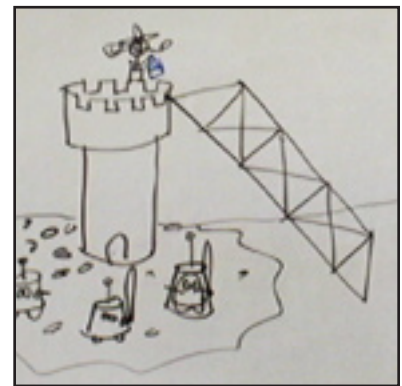
Evil Mister Fred with fish oil.

So he got a minion there, and he made him lay down and he went glug, glug, glug, glug, glug, and drained the whole jar into the minion's mouth. The minion swallowed it and went, "Mmmmm, tastes good, like candy! Want more!" So he gave him about ten jars of this stuff. And the minion all of a sudden started becoming really smart. But within about ten seconds his smartness went away and he became dumb again. And Evil Mister Fred said, "Arghh!"

While Evil Mister Fred was up there thinking about stuff, one of the minions started saying everything that Evil Mister Fred was thinking. Evil Mister Fred was on top of his castle and he was thinking, "Wow, those minions sure are dumb!" And the minion said, "I'm not!" And Evil Mister Fred said, "What?" And the minion said, "I'm not dumb!" And Evil Mister Fred said, "How did you know I was thinking that?" And the minion said, "Because you said it really loud!" And then Evil Mister Fred went, "Whooo! Must be the fish oil. They can tell what I'm thinking. This is great!"

So he took all of his minions, all thousand minions, and made each of them drink ten bottles of fish oil. So he's got a whole army full of oily, fishy-smelling minions. But now they can all read his brain. All of them, at the same time. So Evil Mister Fred would think to himself, "Okay, minions, you are now going to all walk in the direction of the castle." And the minions all turned around and started walking towards the castle. And he said, "Now, you're going to stop." And they all stopped. He says, "Now you're all going to jump up and down and scream like a chicken." And they all started jumping up and down, going "Buck-ba-duuuuuck!" And Evil Mister Fred said, "Now we're talking! This is good!"

And then Evil Mister Fred said, "I wish I had an ice cream cone." Because it was hot up there. One of the minions went poof! -- and turned into an ice cream cone. And Evil Mister Fred said, "Well, that's weird." And he went down and he ate the minion. And then he said, "Well, how far does this go? I wish I had a bridge from the top of my castle down to the ground." And a bunch of minions ran over and they changed themselves into a bridge. *[Student: I wonder if they can change back.]* I don't know, especially if he already ate one that became an ice cream cone.



Minions turned into a bridge.



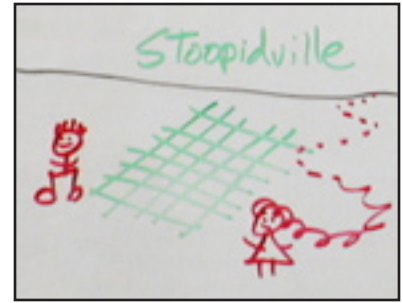
Transformer as a robot and as a plane.

And Evil Mister Fred said, "Now I can take over the whole world!" He said, "I wish I had a giant robot that could transform into a jet aircraft, an army tank, or an atomic bomb." And this weird thing appeared. This transformer thing appeared, and it looked kind of like that. And Evil Mister Fred said, "All right, Transformer Thing, change yourself into a jet aircraft." And it did. It popped up into the air, and it became a jet aircraft. It was like one of those harrier jets that can hover in place. There, it's got eyes. And Evil Mister Fred could get on it and ride around. He says, "The possibilities are endless. Now I can take over the world!"

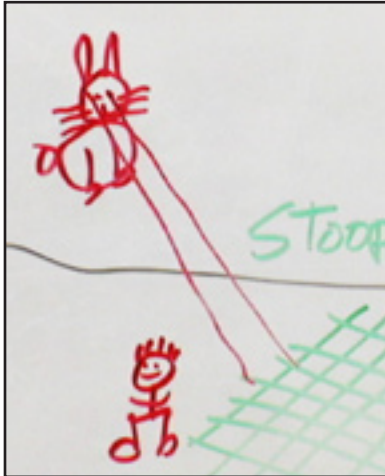
Well, while he was doing this, over here in Goodville, the people were sitting around sipping tea and eating crumpets. *[Student: Stupidville.]* Okay, this is Stoopidville. There. In Stoopidville, everybody was saying, "That Evil Mister Fred, he's worthless. He can't do anything to us. We're smart. We're strong. We can stop anything he does." And Jack and Jill were there, and they said, "Uh, you better be careful. As soon as you think you can stop anything he does, he'll probably come

and do something you can't stop." And they say, "Nooo, that Evil Mister Fred can't do a thing!"

And then they looked out their windows, and here came this giant robot -- crash, crash, crash -- leaving holes in the ground and shooting things with laser beam eyes. And the people in Stoopidville said, "Aw, it's just a figment of our imagination. It's not really there." And then one of the houses went ffffffft! -- and burned up.



Jack and Jill in Stoopidville.



Floating bunny with laser beam eyes.

And Jack and Jill were called in. "Jack and Jill, you've got to save us! The giant monster! It's out there. It's going to kill everything!" And they all looked out the window, and it was gone. It had changed into a little tiny bunny rabbit.

And Jack and Jill looked out and said, "There's nothing out there except a bunny rabbit. It's kind of a funny-looking bunny rabbit. It's floating in midair, and it's shooting laser beams out of its eyes." Now, if you were Jack and Jill, and you wanted to stop Evil Mister Fred from taking over the world with his new superpowers, what would you do?

Imagination and Brainstorming Time

[12:02] *[Students make suggestions]* (THERE ARE NO WRONG ANSWERS! Whatever they say, you should reply: "That's a good idea," "They might do that," etc. After brainstorming, proceed with the experiments, then finish the story.)

We'll leave this To Be Continued . . .

Experiment: "Electric Guitar"

[14:03] Okay, these are called amplifiers, if you like that. Do you know why they call them amplifiers? Because they amplify. And they have a wire on them. And at the end there's kind of a copper wire-colored thing inside of a silver U-shaped deelybob. And really all it is, is a chunk of metal with a wire wrapped around it, and there's nothing else to it.

You're going to work with somebody else. When you get one, you'll discover there is a grey knob with a black strip, and you turn it until it clicks. And you turn it all the way up full blast. When you have it on full blast, you can stick it by your ear, and it should hum a little bit. If it doesn't hum a little bit, we'll look at it. And then, if you do something to it *[turns his back to the students so they can't see what he's doing, and he holds the coil close to the amplifier so it makes some feedback]* it should make noise. An annoying noise. Imagine ten of these, all making annoying noises at once.

So you try to make some really annoying obnoxious noises with it. You need to sit by someone you want to work with. So if you're not sitting by someone you want to work with, go sit by someone you want to work with. *[Instructor passes out an amplifier to each group of two students.]* Keep the rubber band for later. When we give them to you, they're all wrapped up with a rubber band around them. When you're done, you'll wrap them all up and put the rubber band back around them. *[Students manipulate the amplifier to make noises. If the noise bothers them, they can put on earmuffs.]* Take turns and let your partner do it. *[Students continue for a couple of minutes.]* Everybody stop.



Holding the coil next to the amplifier to create feedback.

Now, these can be used to detect things. Of course, they make a lot of noise on their own. They're detecting the speaker in there, and the tiniest bit of noise that comes through the speaker comes around through here and goes back in, and it goes around and gets amplified each time, and they call that feedback.

Now you're going to turn it all the way on like you had it, and tap on it, and rub it on the table, rub it on your fingers, rub it on stuff -- don't throw it on the floor. And see if you can make noise that way. *[Students rub the amplifiers on various surfaces for a couple of minutes.]*

Now try it with a magnet and see if it does anything. *[Passes out a small disc magnet to each group, and students continue.]* Does it work better with a magnet, or worse? *[Students: Better. Worse.]*



Amplifier with pickup coil.

Okay, everybody turn them off for a second. Now, we have placed around the room some stuff. We're going to move it further away. There is an electric motor that is just going to be hooked to a battery. And you can listen to the wires in the motor, you can listen to the motor, you can listen to the battery -- by holding your thing next to it, either with the magnet or without the magnet. We'll put our electric motor someplace where you can't find it easily. How about on this blue thing?



Lantern battery and small motor.



Handcrank radio.

We have a hand crank radio with a dead battery. It's got a solar cell, it's got a dead battery, it's got a cranky thing on it, there's an AM-FM radio, there's all kinds of switches. We'll put that on the stove. And you can listen to that. When you're listening, don't just put it in one spot, but listen all over. While your partner turns the crank, listen all over it and see what you hear.

We have an old-fashioned cassette player. And somewhere on here there's a Start button. I'll turn it on so the tape is moving, and you can listen all over this and see if this makes any sound. We'll hide this over here by the pens.



Cassette player.



Fan and hand-crank generator.

We have a fan and a hand-crank jobbydooie that can make the fan spin. You can listen to this part, you can listen to the wires, you can listen to that part. Where should we hide that? In Evil Mister Fred's castle. Good idea.

Down here on this cart, there's a dead electric guitar. It's hooked up to nothing. It's just sitting here, and you can put the sensor somewhere on the guitar and see if you can amplify the sound of whatever's in there, even though it's not plugged in. We'll just leave that sitting there.



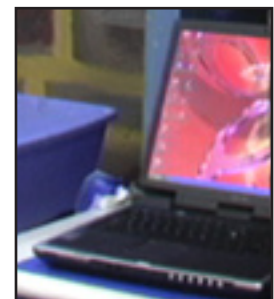
Electric guitar.



Acoustic guitar.

Over here we have an acoustic guitar, and you'll see if you can pick up any sounds through your amplifier with that thing.

Over on this table, we have a laptop computer. And the laptop computer has all the electronics inside. You can try listening all over the keyboard. Listen all over the top of it. Please don't rub the screen. Repeat after me: *[Students repeat each phrase]* "I -- will not -- rub and scrub and damage the screen." Thank you very much.

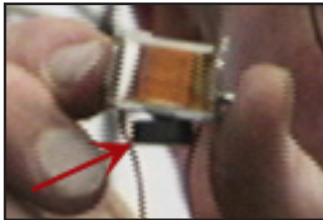


Laptop computer.

Okay, now usually I say go ahead and do stuff, and everybody runs to one thing and they all fight over the one thing. So you can go run over and fight with each other and try as many of those as you can, and see what you can find out. Take your magnet with you, because you might need it.

[Students wander around the room for several minutes, testing each of the objects with their amplifiers.] Okay, time's up. Turn them off. Turn the little knob until you see the black line and it clicks.

Okay, did anybody discover that putting the magnet someplace makes it more sensitive? *[Student: Yes.]* Where did you put the magnet? *[Student: On the thingamabob.]* On the thingamabob. On the speaker thingy. Well, on electric guitars, somebody discovered that if you put the magnet on the back of the pickup coil, it becomes more sensitive. Let's turn this one on. If you



Disc magnet on back of pickup coil.

put the magnet on the back side, then it gets really sensitive *[places pickup coil on table so students can hear the sound it makes].*

Now, if you put it by a guitar string

. . . When guys wanted to make electric guitars, after they discovered

where the magnet should go, they could get a really loud sound out of it.

[Demonstrates by holding the pickup coil next to the guitar strings and plucking them.] And you could make the sound go practically forever that way.

If you have a computer at your house, and the computer doesn't work, you can hold this by the computer *[demonstrates]* and you can hear the computer doing its operations. If you move it around and find a spot and then push some keys, you can hear how it processes the keys *[taps on some keys]*. Somewhere in there, there's a power supply that just hums, right there. There's a thing called a central processing unit -- it's right there. There are memory banks, and I don't know where they are. But if you did, you could find them.



Listening to the electric guitar.



Listen to laptop while pressing keys.

If you have it with a magnet on it and you put it by an outlet -- you have to listen very carefully -- you can hear the electricity in the wires. When electricity goes through a little motor *[picks up motor that's attached to lantern battery]*. . . There are coils just like this inside of the motor, and the coils have electricity going pulse, pulse, pulse, pulse, pulse, through them *[holds pickup coil near the motor so it hums loudly]*. So it gets really loud. And it even follows the wires that lead to the battery. So if somebody has an electric motor anywhere in your house, you can find it just by wiggling this around until you find the hidden motor.

If you have a digital camera [*approaches the video camera that's recording this lesson*], you can hear the camera doing stuff. Oh, we have a transmitter up here [*no sound*] -- oh, wow, that's shielded.

If any of you happens to be an alien, if I hold it by your head we should be able to hear your brain [*holds pickup coil next to a few students' heads*]. Aw, he's not an alien. He's not an alien. Beep-beep-beep! He's an alien. [*Holds coil next to a student's digital watch.*] His digital watch makes no noise.

Is this cassette still playing? Oh, somebody turned it off. We'll fix that [*turns it on and moves coil around it*]. Did you hear that?



Hooking up the amplifier to a speaker with alligator clips.

So these are really handy if you want to hear stuff, but what if you want to put something in there besides a lot of noise? Is there any way to put your voice in the box? What if we hook it up to something like . . . We've got a speaker here. We've got these wires you can plug into the hole. Just take off the one that you have. Plug this in where the other one was [*removes pickup coil and plugs in a wire that has an audio jack on one end and a pair of alligator clips on the other end*]. Now you've got alligator heads that can feed into it.

For this speaker, I'm just going to hook the alligators to its wires. [*Instructor gently taps the diaphragm on the speaker.*]

Don't tap hard because these are just paper. If you poke hard, your finger will go right through and you'll say, "Mister Mac, somebody poked a hole in my speaker." [*Holds speaker next to his mouth and speaks into it.*] Hello. Can you hear me? So we're going to give each group a speaker and some alligators, and you see if you can make the speaker work.

[*Instructor gives a speaker and wires to each group, and students put them together.*] You'll take off your pickup coil, and you'll have one talk and one listen. We'll help you hook them up. Talk into it. [*Students try making sounds with the speakers for a few minutes.*]

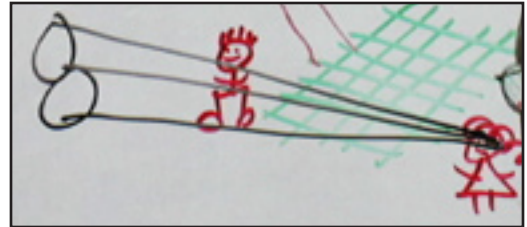


Talking into the speakers and listening with the amplifiers.

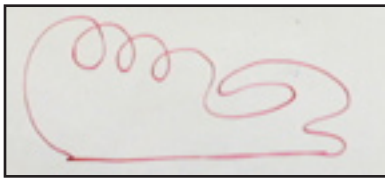
End of Story

*** DO NOT * present this part of the lesson until after the experiments!**

[41:56] We need an ending for our story. So Stoopidville is being attacked by a transformer. And the transformer can become a jet plane, it can become a giant monster, it can even be a laser-pointing bunny rabbit that can hover in the air. And Jack and Jill have finally convinced the people they've got to do something to protect themselves. And Jill happened to have with her a pair of binoculars. And she was looking at Evil Mister Fred. And she saw that Evil Mister Fred was talking. His mouth was moving. And as he was talking, the transformer would change into different shapes and do different things. And she said, "Whoa, Evil Mister Fred must be connected to this in some way. I wonder how he's doing that?"



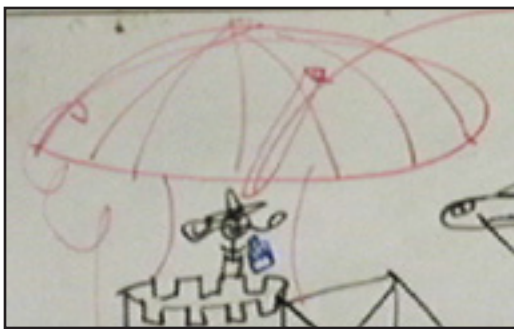
Jill's binoculars.



Roller coaster.

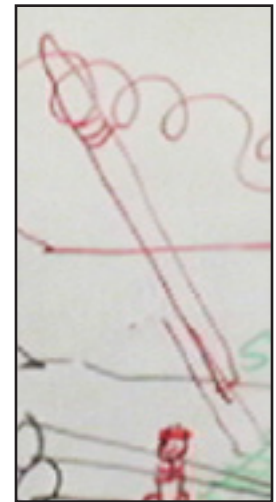
And Jack said, "Well, let's try thought power! And let's all think of a roller coaster." So they told everybody in Stoopidville to stop thinking whatever they were thinking, and think of just roller coasters. Roller coaster, roller coaster, roller coaster, roller coaster. And everybody was thinking roller coaster, and all of a sudden the laser beam-shooting bunny changed into a roller coaster. And Evil Mister Fred said, "What

just happened?!" And Jack and Jill said, "Hey, that's working! All right, everybody, let's think of a giant marshmallow!" So they all started thinking giant marshmallow, giant marshmallow, giant marshmallow, giant marshmallow, giant marshmallow. And the roller coaster turned into a giant marshmallow, which came and landed on Stoopidville.



Mushroom cloud.

And Evil Mister Fred said, "Nooooo!" And then, the giant marshmallow, by Evil Mister Fred's incredible anger, changed into a nuclear missile. And it took off, up into the air -- whoosh! And everybody in Stoopidville said, "Uh-oh." Because now there's this nuclear bomb flying up in the air. [Student: Think of marshmallows again.] And Jack and Jill were going, "Think of marshmallows again -- quick!" But



Missile.

they were too late. It flew way up into the air and came back down. Unfortunately, the earth had shifted a little bit, and it came down on top of Evil Mister Fred. And there was a big mushroom cloud. There -- mushroom cloud. And they all lived happily ever after, except Evil Mister Fred. [Student: That blew up!] That blew up. They put him on a pizza as a mushroom.

End of Lesson