

Case Studies on the Move

Family Technology Self-Setup Protocol



Overview

This document provides instructions for families to set up video and audio equipment on their own as part of the *Brains On! the Move* research study. Families had the equipment over a period of up to two weeks, and listened to a minimum of three episodes during that time. For each listening experience, they set up the recording equipment in their vehicle and recorded themselves. When they were finished, they turned off the equipment and removed it from their vehicle. They were responsible for storing and charging the equipment in between listening experiences.

This document outlined the entire process to serve as a resource for families throughout their participation.



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Equipment

When you receive the equipment, you'll have the following components:

- ☐ 3 GoPro Cameras and suction cup attachments
- ☐ A front seat audio box
 - ☐ 1 recorder
 - ☐ 1 receiver
 - ☐ Red cord
- ☐ A back seat audio box
 - ☐ 1 recorder
 - ☐ 1 receiver
 - ☐ Red cord
- ☐ Charging box
 - ☐ 6 GoPro batteries
 - ☐ 2 GoPro charging stations
 - ☐ 4 USB to Micro-USB cords
 - ☐ 2 Microphone & Receiver charging cases (each with 2 microphones inside)
 - ☐ 8 AA batteries in battery box
 - ☐ 1 USB 4-port wall charger
 - ☐ Tape
 - ☐ Extra GoPro screen covers

Images of Main Pieces of Equipment

These are the main pieces of equipment you'll use.



GoPro Camera

In this photo the GoPro is attached to a
Suction Cup Attachment



Microphone

This mic has a fuzzy
windscreen on it.



Receiver



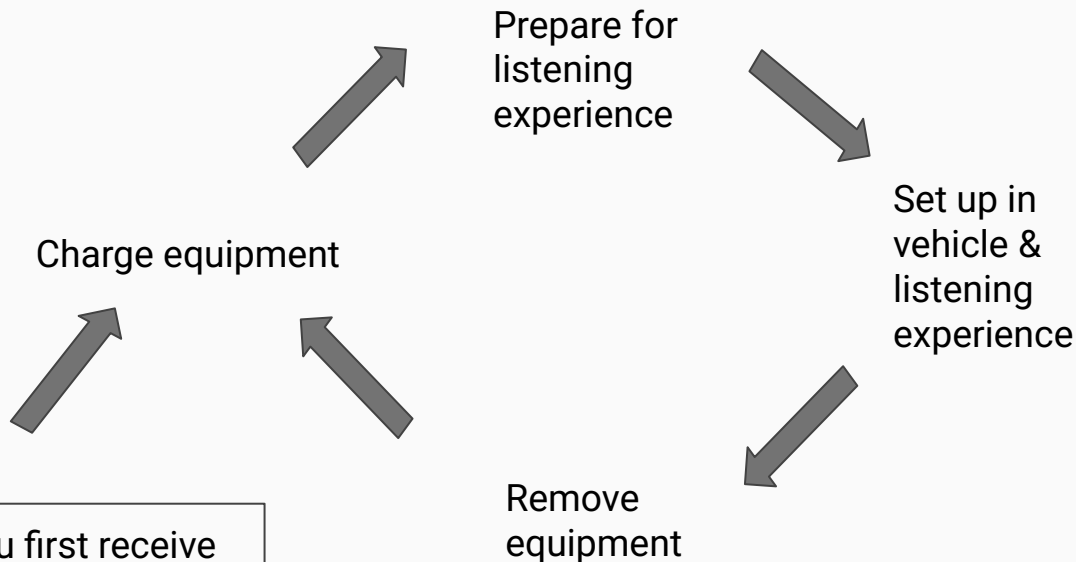
Recorder

Overview

These instructions will guide you through how to get everything set up for a listening experience where you will collect video data.

The first thing you'll want to do when you receive the equipment is set up the charging box where batteries and microphones will be charged when not in use.

When you first receive equipment, set up charging station at home. You'll only do this step once.



Charge Equipment

Anytime you are not recording a listening session, make sure to charge the equipment

Opening and closing the suitcase



To open the suitcase, push down on the **grey tabs**, then lift up the bottom black latch, then push the whole mechanism upward to disengage the top latch.



Charging equipment

When you are not listening, please charge the equipment so it's ready to go the next time you collect data.

You'll be plugging in a number of things. We've provided a USB hub with four slots for you to plug everything into.

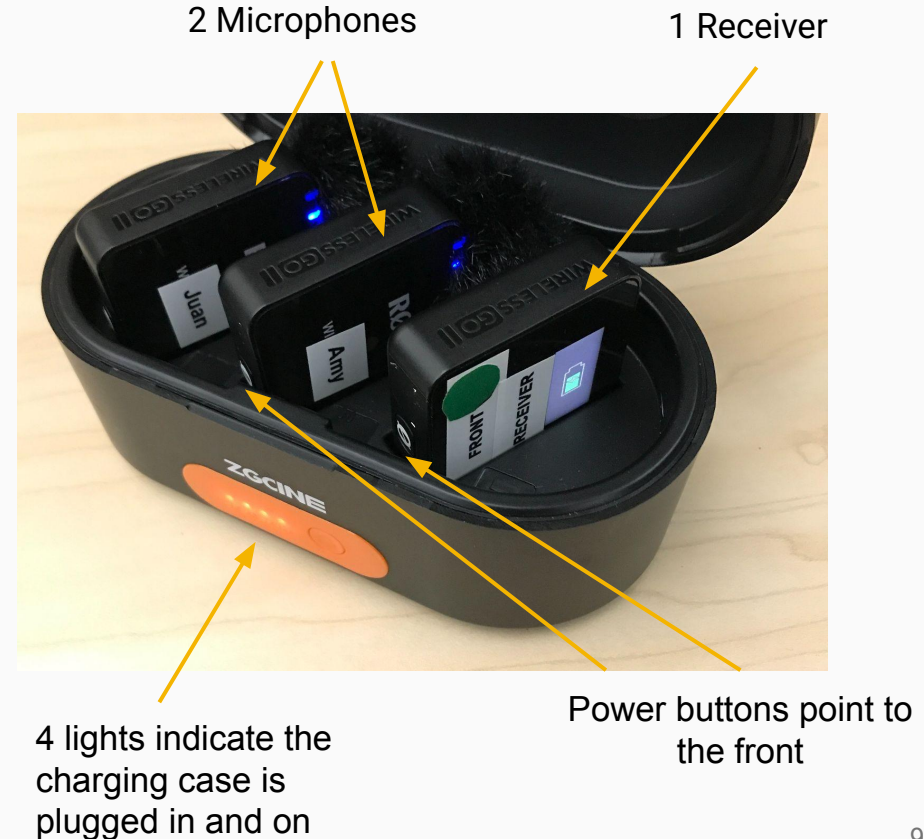
The **Charging Box** includes everything you need to charge equipment. This includes:

1. 1 USB wall charging hub with four slots
2. 4 USB to micro-USB cords
3. 8 spare AA batteries for recorders
4. 2 GoPro dual chargers
5. 6 GoPro Camera batteries
6. 2 microphone and receiver charging cases



1. Charging Microphones and Receivers

- On the back of the microphone charging case, there is a USB-C plug in.
- Plug a charging cable into the case USB-C port. The lights on the front of the case will light up to indicate the case is plugged in.
- Each case holds two microphones and one receiver. The first two slots are for microphones, and the last slot is for a receiver.
- You can leave the fuzzy windscreens on the mics when charging.
- When the microphones are charging, the blue lights will illuminate. The screen on the receiver will light up when it's charging.



2. Charging the GoPro Batteries

First, remove the GoPro from the suction cup attachment if attached.



Loosen and remove this screw to remove the camera from the suction cup attachment.

Then, to open the GoPro camera door to remove the battery:

1. With the camera facing you, the side door is on the left side
2. At the bottom of the door there is a notch
3. Push down on the notch to be able to open the door
4. Open the door as seen below. NOTE: if the door comes off, that's okay. Snap hinge onto metal pin to reconnect.



Push the bottom piece downward to open



Pull on the fabric to pull out the battery



Battery

2 (cont.). Charging the GoPro Batteries

- Place batteries from the GoPro Cameras in the GoPro Battery Charging case
- Plug a charging cable into the USB-C port on the back of the GoPro Battery Charging case
- You can leave charged batteries in the charger after they are done charging.
- Do not store batteries in the cameras when you aren't using the cameras for an extended period of time as they draw power even when camera is off.



If light is amber (not green) do not use until green.

Light is **amber** while the batteries are charging



Light is **green** when battery is fully charged



Prepare for Listening Experience

Get all of the equipment ready to listen together in your vehicle

1. Place Fully Charged Batteries in the GoPro Cameras

GoPro Cameras

1. Insert fully charged battery
2. Close door so it is flush with camera body
3. Push down on notch as you push the door closed
4. Push the notch up when the door is flush with the camera to lock in place



2. Attach GoPro Cameras to Suction Cup Attachment

On bottom of GoPro, there are “folding fingers” that stick out to allow you to attach to the suction cup attachment



With the GoPro facing you, slide the folding fingers through the suction cup attachment. Place the screw through and tighten.



Put screw through here and tighten the screw

The folding fingers attach here

Do not place GoPro facing away from you.



2(cont). Attach GoPro Cameras to Suction Cup Attachment

This is what it should look like when you attach the “Backseat driver side” camera and the “Backseat passenger side” camera to the suction cup attachments. Notice the difference in position of the cameras.

Once assembled, place the GoPro camera in the bag that matches the label on the GoPro (e.g. “Backseat passenger side” camera goes in the “Backseat passenger side” bag).



Backseat Driver Side Camera



Backseat Passenger Side Camera

2(cont). Attach GoPro Cameras to Suction Cup Attachment

The Front windshield camera is placed on the suction cup attachment so that it is upside down. Place the camera is the bag labeled “Front windshield camera.”



The folding
fingers attach
here

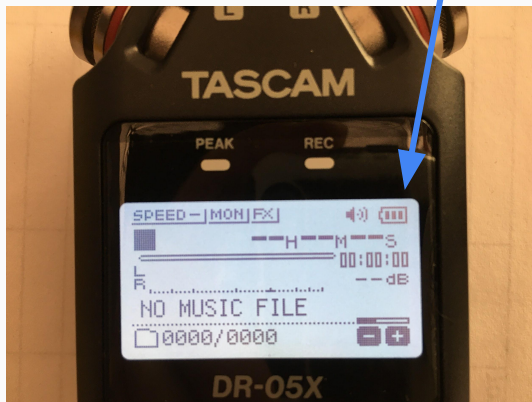
Put screw through
here and tighten the
screw

3. Check Battery Levels for Recorders

Check recorder batteries

Press and hold the power button to turn on the recorder. The screen will illuminate.

If the battery icon shows less than three bars, replace the batteries. Then, turn off the recorder.

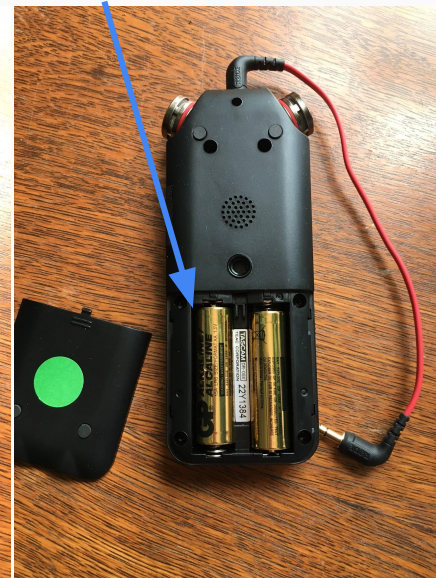


Tip: Keep any old batteries for another device like a TV remote control. They're still good!!

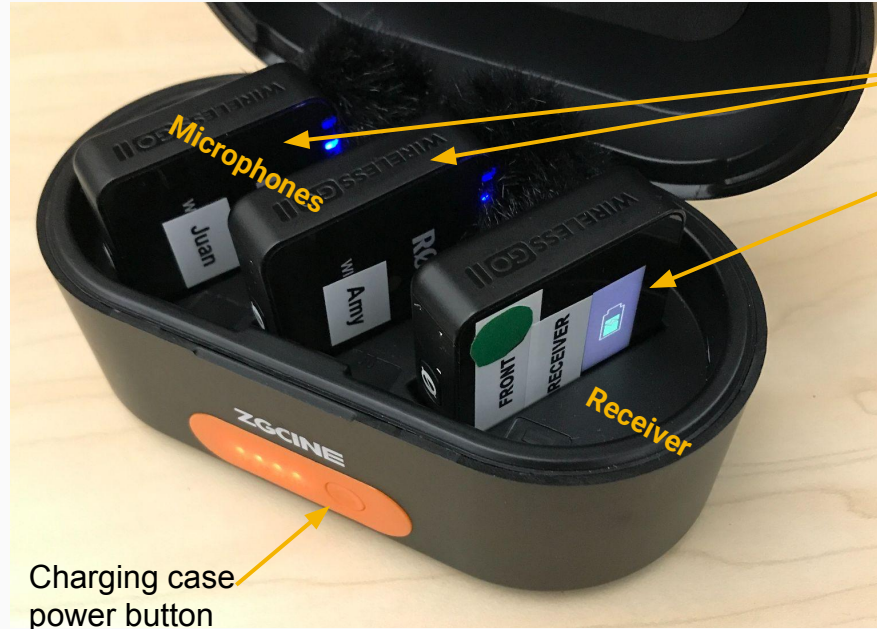
How to replace batteries on the recorder

Battery compartment accessible from back

Slide door down to reveal batteries



4. Check that **Microphones and Receivers** are Charged



Microphones and the receiver are charging (not fully charged) when...

- blue lights are flashing on the microphones
- a charging icon (the lightning bolt) shows on the receiver screen

The mics and receiver are fully charged when...

- the microphone lights are solid blue (no flashing)
- the receiver shows a solid green bar with no charging icon (no lightning bolt)



Make sure charging case is plugged in and turned on to see the charging status on the mics and receiver. You may need to push the power button to turn on the charging case.

5. Prepare Audio Boxes & Microphones w/Fuzzy Windscreens

Audio Boxes

Gather both the Front and Backseat Audio Boxes.

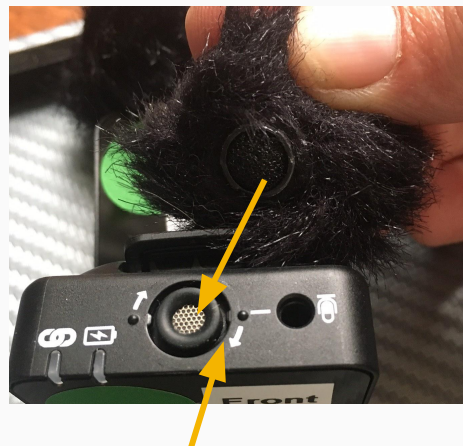
For each box, attach the **recorder** using the **red cable** to the **receiver**.

For the Front box, attach the Front Receiver to the Front Recorder. For the Backseat box, attach the Back Receiver to Back Recorder. Cover the box to carry outside.



Microphones

- Microphones will have family members names on them (and receivers will not). There will be one microphone for each family member.
- Attach fuzzy windscreens to the mics by fitting the **ring on the windscreen** into **slot on the mic**
- Twist in the direction of the arrows on the mic to lock in place
- Place the microphones in the box for now. You'll hand them out at the car.



Arrow - direction to twist

5. You're Ready to Head Out to Your Vehicle

Bring this equipment with you out to your vehicle:

- ❑ Three bags of GoPro Cameras (front windshield, backseat driver, backseat passenger)
 - ❑ Each GoPro Camera attached to a suction cup attachment
 - ❑ Each GoPro Camera with a fresh battery
- ❑ Frontseat Audio Box
 - ❑ Front recorder attached to Front receiver with red cord
- ❑ Backseat Audio Box
 - ❑ Back recorder attached to Back receiver with red cord
- ❑ Microphones with attached fuzzy windscreen for all individuals who will be in the car
- ❑ Suitcase to store equipment in case you stop and have to take equipment down

Setup in Vehicle and Listening Experience



1. Attach the Front Windshield GoPro Camera Under Rearview Mirror

Place the GoPro camera labeled “Front Windshield Camera” below the rearview mirror like in the images below.
The GoPro camera will be upside down.

IMPORTANT: Per Minnesota regulations, do not place the camera in any other location as it may obstruct the driver's view.



Tip for Attaching GoPro Cameras

Using the GoPro Suction Cup Attachment



Removal Tip: Unlock the lever and use **the plastic tab** to peel the mount from the window.

2. Attach the Backseat GoPro Camera

There are two different backseat GoPro cameras. You only need to attach one of them (the other is a backup). Decide which side you would like to place the GoPro. If you only have one child in the backseat, we suggest placing the GoPro on the window opposite they are sitting so it isn't right next to the child. If you have two children, you can decide which side you'd like to place the GoPro on. GoPro cameras are labeled "Backseat Driver Side" and "Backseat Passenger Side" to indicate which side it goes on.

Position the GoPro as shown:

- **Place** in upper corner of the rear window
- **Suction Cup** points to the rear of vehicle
- **GoPro Camera** points to the front of the vehicle



Backseat Driver Side GoPro



Backseat Passenger Side GoPro

3. Turn on GoPro Cameras & Record

- Each camera should be attached to a window (windshield or back window).
- **Power on each camera** with one short press of the red button on the top of the camera (or on the lower side of the inverted windshield camera). When you power on the camera, it starts recording right away.
- **Confirm the cameras are recording** by observing the flashing red light on the front display and/or a flashing red light in the upper left corner of the rear display (see below) The front display also shows you the battery life (in this case it's at 97%).



Flashing "Recording" lights



Do not press this button

4. Check GoPro Camera Positions - Front Camera

Finally, check the position of the GoPro cameras. You can do this by looking at the image on the GoPro rear screen through your window.

Front Windshield GoPro camera: You want to make sure the Front Windshield GoPro can see the people sitting in the front two seats of the car. The Front Windshield GoPro is typically okay.

To adjust the Front Windshield GoPro Camera:

If you need to adjust the Front Windshield camera, you will just need to tilt it forward or backward.

Move (tilt) the camera forward and backwards while looking at the view in the rear screen.

You may need to loosen this screw to tilt the camera. Tighten the screw when the camera is in place.



4. (cont) Check GoPro Camera Position - Backseat camera

The Backseat GoPro Camera should be able to see the full faces and hands for each of the people in your back seat. **You may need to adjust the Backseat GoPro camera slightly.** This can be done by adjusting the screws on the suction cup assembly and moving the camera and/or arm.

First, try tilting the camera backwards or forwards:

1. Loosen this screw a little by twisting.
2. Move (tilt) the camera forward and backwards while looking at the view in the rear screen.
3. Re-tighten the screw when you've found the position you want.



To move the camera on the arm forward or backward (away or towards the window):

1. Loosen this screw slightly by twisting.
2. Move this arm forward or backward while looking at the view in the rear screen. You just move the arm back and forth.
3. Re-tighten screw when you find the right position.

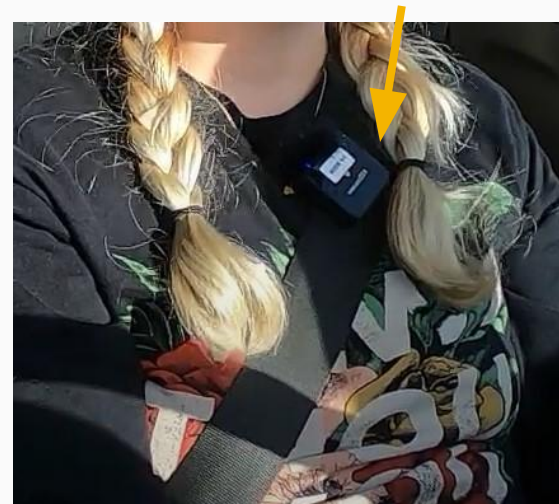
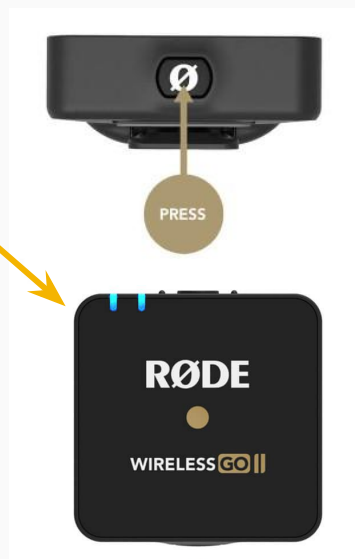
You may have to adjust both the camera and the arm to get a full view of the backseat passengers' faces and hands.

5. Hand Out and Turn on Microphones

Once everyone is seated in the car, power on and pass out microphones. Make sure family members are using the microphone labeled with their name and the fuzzy windscreen is attached (see image below). Clip the microphone to the family member's seatbelt. Important: Do not pass mics out until people are in the car as it is important the mics stay near the audio boxes. The mics start recording internally as soon as they are turned on (this is a backup recording). Remind everyone not to play with the mic or fuzzy windscreen. Avoid eating crunchy foods or foods with wrappers while recording, if possible.

How to turn on the mic

Press the 'power button' on the bottom of the microphone. One or two blue lights on the top left-hand side of the microphone will turn on when the microphone is on. Two lights will most likely turn on, but if only one turns on that is okay. One of the lights might be flashing, that is okay too.



6. Set Up Audio Boxes

You will have two audio boxes. We have labeled the setups “Frontseat Audio box” and “Backseat Audio Box” as that is the location you should place the boxes. Within each box is 1 Recorder and 1 Receiver, attached by a red cord, also labeled “Front” or “Back.” They are color coded as well so you know what all goes within the same box.



6. (cont) Set Up Audio Box - Turn on Recorder and Receiver

In each audio box, verify the label on the recorder and the receiver match (e.g. both are labeled “Front”).

1. To turn on the **Recorder** - press and hold the HOME/Power button until the screen illuminates (about 3 seconds).
2. Push the red Record button twice on the Recorder so that the red light at the top under “Rec” is a steady red color and the screen says “REC.” This is **important** because if you only hit record once the red light flashes and it is not recording yet.

3. To turn on the **Receiver** - press and hold the power button until the screen illuminates.



7. Set Up Audio Boxes - Store

Place the connected recorder and receiver in the corresponding Audio Box. Once you've double-checked that the receiver and recorder are on and recording, place the cover on the box. Place the Frontseat Audio box on the floor in the front of your vehicle and Backseat Audio Box somewhere in the backseat area of your vehicle. It is important that the boxes are not kept in the same location (i.e. both boxes in the backseat) to prevent interference with the recordings.



7. Bring Extra GoPro Batteries If Listening to More Than One Episode

If you plan to listen to more than one episode, you should bring two additional fully charged GoPro batteries.

GoPro batteries last around 90 minutes but sometimes it can be shorter, so it is a good idea to have back-ups. You don't have to worry about the batteries running out for any other technology during a trip, just the GoPros.

When the GoPro battery dies, it will beep loudly. The beeping will stop on its own. The camera will turn off automatically and the front screen will be blank. To change the GoPro battery, you'll need to remove the camera from the suction cup attachment. After you have changed the battery, reattach the GoPro, check the GoPro position, and turn the GoPro on again. Make sure the red record light is blinking.

Keep all of the other technology (like the recorder) running and recording during this time if you plan to continue listening to an episode after changing the batteries.

You can check the battery life during the trip by looking at the front screen of the camera. This image shows the battery is at 97%. Unfortunately, the icon doesn't tell you how many minutes are left. You may want to consider changing the battery once it reaches 10%.



Final Checklist Before Listening Experience

Check the following before you leave:

- ☐ Are all the microphones turned on (the blue lights are on)?
- ☐ Are all GoPros turned on and recording (the red light is blinking)?
- ☐ Are both recorders turned on and you've hit Record twice (the red light is a steady red and the screen says REC)?
- ☐ Are both receivers turned on (the screens are on)?
- ☐ Have you checked the GoPro camera positions?
- ☐ If you plan to listen to more than one episode, do you have additional GoPro batteries with you?
- ☐ Do you have the suitcase with you in case you need to stop and take down the equipment?

Some Safety Reminders From the Consent Form

- The driver must be 18 years of age.
- Family members will not touch the GoPro camera while the vehicle is moving.
- Your family will not record if it is raining. If it begins to rain while you are recording you will pull over, stop the recording, and remove the equipment.
- You will only record your family while driving in the state of Minnesota. You will not record your family while driving in any other state or in Canada.
- If the podcast episode is played on a device (phone, iPod, etc), the driver will not touch the device while driving. If there is not a passenger in the car who can handle the device and you would like to pause or rewind the episode, the driver will pull the vehicle over and put it in park before doing so.
- If your family leaves the car and there is no longer anyone in the vehicle, you will take down the equipment and store it securely in the trunk.
- Your family will follow all of the rules and laws governing the safe operation of a motor vehicle in the State of Minnesota including the wearing of a seatbelt.
- Only immediate family members (that you have filled out consent forms for) can participate in the study.

Remove equipment

Checklist For When You Are Done Listening

When you are done listening and talking about the Brains On episode, please **stop recording**. This is **extremely important** because the microphones have limited storage capacity.

Check the following when you are done listening:

- ☐ Turn off your microphones (press and hold the power button for a few seconds). Are all the blue lights off?
 - ☐ Turn off the GoPros (press the red button) Are the red lights off?
 - ☐ Turn off the recorders (press and hold the power/Home button for a few seconds). Are the screens off/blank?
 - ☐ Turn off the receivers (press and hold the power button for a few seconds). Are the screens off/blank?
 - ☐ Write down what episode(s) you listened to and the date in the Episode Log.
- ☐ Remove everything and either go to the next step of charging batteries/equipment or place the equipment in the suitcase until you go inside your home to charge it.



Return to page 6 for an overview about charging equipment