Makerspace FREEBIE! littleBits™ 101 Task Cards

Designed and Created by
Collette J. aka Mrs. J in the Library

Teacher's Notes and Terms of Use

1. This set of task cards is designed to be **a mostly self-guided introduction to the littleBits™ Classroom Set and how the Bits can be used in a makerspace**. littleBits™ (sic) are small magnetic pieces of electronics that snap together to form circuits that light up, buzz, spin, lift, etc. They are used to create projects as part of the "maker movement." The introduction video at http://vimeo.com/45276780 gives a good overview of what they can do (and why they are so cool).

2. **The Classroom Set, including a Base Kit and Premium Kit, and some "odds and ends" is an excellent way to start your library makerspace,** since littleBits™ don't require any heat, soldering, hot-gluing, or other more dangerous tools. You can also use these task cards with only a Base Kit as well. **By the way, I am not being paid to promote littleBits™; I just have them in my library, and I think they are well-suited to a school library setting. Also, they offer a 15% discount if you buy direct, which never hurts!**

3. **If you are unfamiliar with the "maker movement" and makerspaces**, the best FREE resource I've found for teachers is the Makerspace Playbook published in February 2013 by Makerspace. Though it focuses on secondary schools, it's easy to see how you can adapt it to an elementary space. Also, the book "Invent to Learn" by Silvia Libow Martinez and Gary Stager is excellent, though not free!

4. **Students may go in any order or work their way from task card 1 to 12**. If time is very limited, students can create the circuits on the task cards of one color.

5. I have permission from littleBits™ to use some of the text from their website in order to make and share these cards for free to teachers and the littleBits™ community. The original littleBits™ 101 course is by littleBits™ Singapore at http://littlebits.com/lessons/101-lesson-learning-input-and-output-the-littlebits-way, but for this product, I have heavily adapted and re-written the task cards so they don't resemble much of the original. The cards use a wider variety of Bits and is more flexible for several students using a single Classroom Set of littleBits™. Only cards #3 and #6 resemble the original version. The photos in the new, revised set were taken by me and are licensed under a Creative Commons Attribution-NonCommercial 3.0 Unported License.

6. The QR code on task card #1 goes to the littleBits™ introduction video on SafeShare (via YouTube). Check that it the website works and isn't blocked for student viewing before handing out the cards. Alternatively, you can show the video yourself via SafeShare/YouTube or Vimeo.

7. **Terms of Use** - Feel free to edit any of the TEXT (not graphic) content according to your needs. Most of my products are licensed under a Creative Commons Attribution-NonCommercial 3.0 Unported License. That means you can modify this product as long as you don't re-sell it. Feel free to share this product with other teachers!

8. If you found my product useful, please leave feedback at: http://www.teacherspayteachers.com/Product/Library-Makerspace-littleBits-TM-Task-Cards-886086.

Makerspace – littleBits™ 101

1

Makerspace – littleBits™ 101

2

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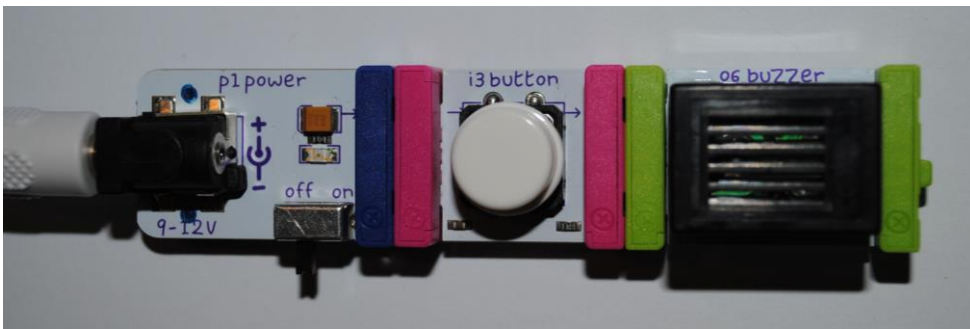3

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#2 – Power + Button + LED

Construct a simple circuit with Power + Button + LED. **You may use the LED or Long LED.** When you press the Button, what do you see?
Replace the Button with the Pulse Bit. What changes? What does that tell you about how the Button and Pulse Bits work?

#1 - Scan the QR code with the i-nigma barcode scanner app. Watch the video to discover how littleBits™ work!

Remember: You may need to pause the video so it can load.

When you finish, choose another card.

http://safeshare.tv/w/lCLdURsRlU

OR

http://vimeo.com/45276780

#4 – Power + Button + Buzzer

Construct a circuit using Power + Button + Buzzer.
When you press the Button, what happens?
If you want the Buzzer to buzz off and on, what Bit should you add or replace?
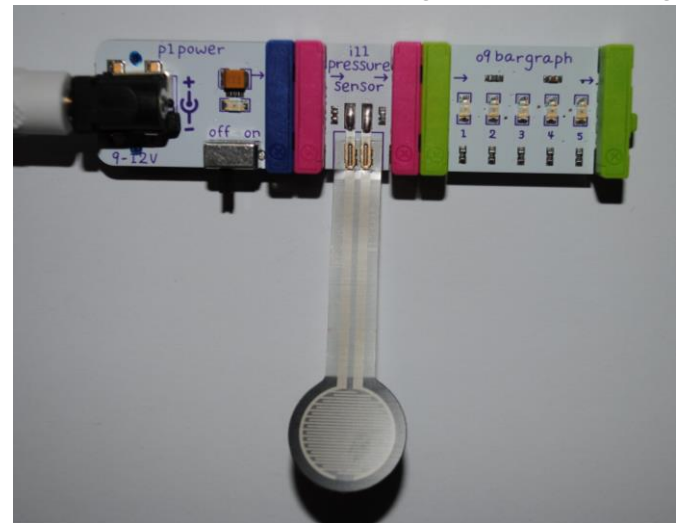If you want to make the Buzzer go on and off faster, what should you do?

#3 - Power + Pressure Sensor + Bargraph

Construct a circuit using Power + Pressure Sensor + Bargraph. When you press the pressure sensor, what do you see? How could you light up only 3 lights?

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5

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6

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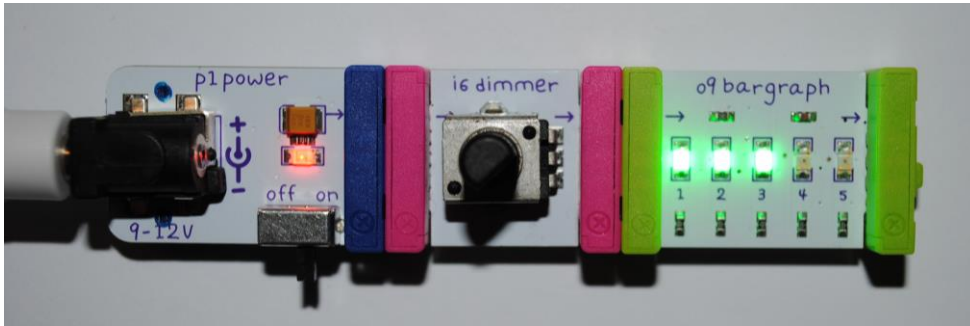
7

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8

#6 - Power + Dimmer + Bargraph

Construct a circuit using Power + Dimmer + Bargraph.
You may use the Dimmer or Slide Dimmer.
What do you see when you turn or slide the dimmer?
How many bars light up?
If you want the lights to flash every 2 seconds, what Bit should you add or replace?
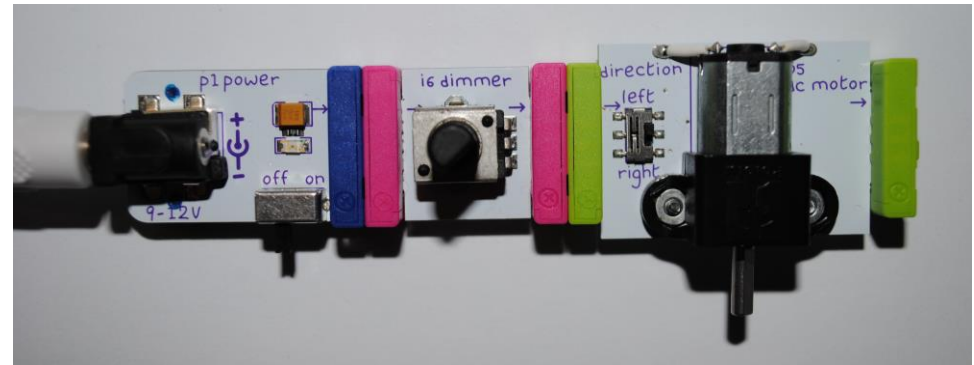

#5 - Power + Dimmer + Motor

Construct a circuit using Power + Dimmer + Motor.
You may use the Dimmer or Slide Dimmer, and the DC Motor, the Vibration Motor, or the Servo Motor.
When you twist the Dimmer, what do you see?
If you want to have less movement, what Bit should you add? Or what Bit should you replace?
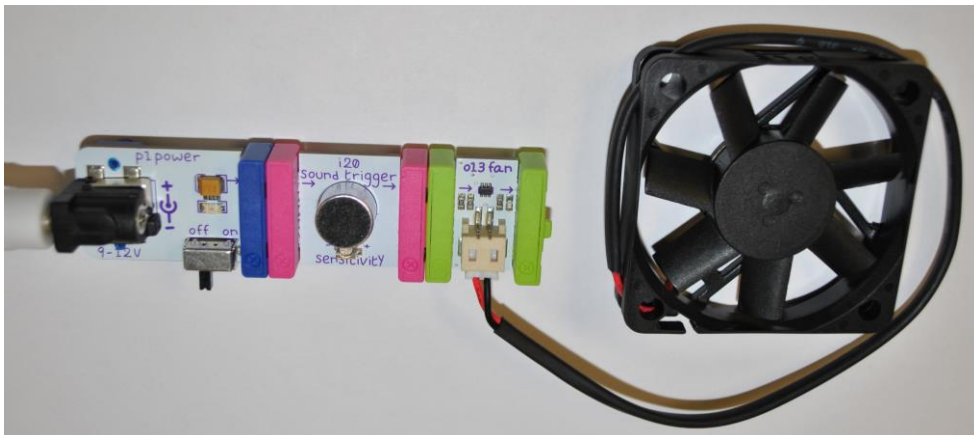

#8 - Power + Sound Trigger + Fan

Construct a circuit using Power + Sound Trigger + Fan.
What do you see at first?
Adjust the sensitivity of the Sound Trigger so that the fan only spins when you clap your hands.

#7 - Power + Light Sensor + LED

Construct a circuit using Power + Light Sensor + LED.
You may use the LED or Long LED. What do you see? Can you make the LED turn on in both "light" and "dark" modes on the Light Sensor?
If you want to turn the LED on and off manually, what Bit should you add and where?

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11

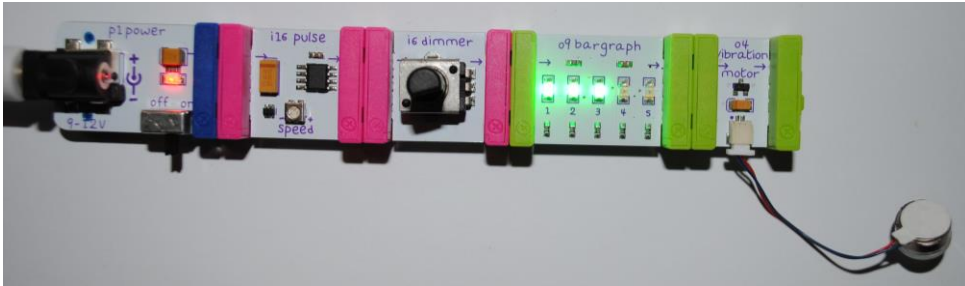Makerspace – littleBits™ 101

12

#10 – Power + 2 Inputs + 2 Outputs

Construct a circuit using Power, any 2 Inputs, and any 2 Outputs. What do you see?

Change the order of the Bits. How does that move change the Outputs?

This is just one example. Yours can look different!

#9 - Power + Roller Switch + Wire + Output

Construct a circuit using Power + Roller Switch + Wire + any Output. **You may use a Wire or Branch.** What do you see? Can you make the Output work in both the "open" and "closed" modes on the Roller Switch?

This is just one example. Yours can look different!
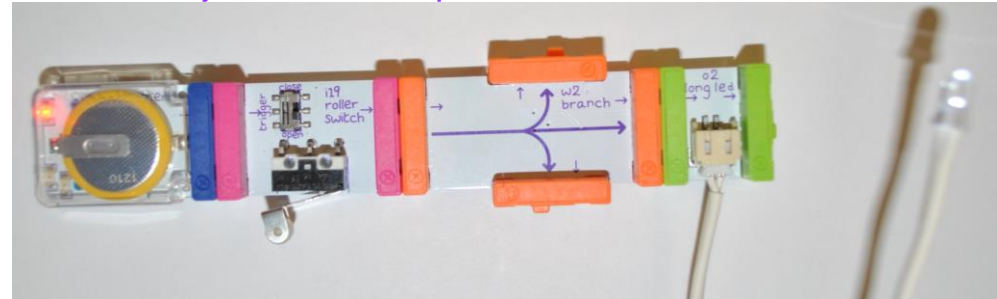
## #12 – Power + Any 4 Bits

Construct a circuit using Power + Any 4 Bits.

What could your circuit be used for? What could you make with this circuit inside it?

#11 – Power + Input + Wire + 3 Outputs

Construct this circuit using Power + Wire + any Input + any 2 Outputs. What do you see? Can you change the Bits or add more Bits to make the circuit better, cooler, or more useful?

This is just one example. Yours can look different!
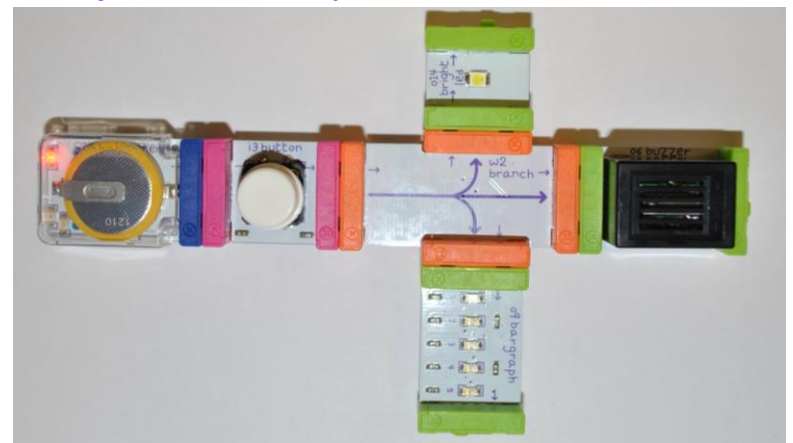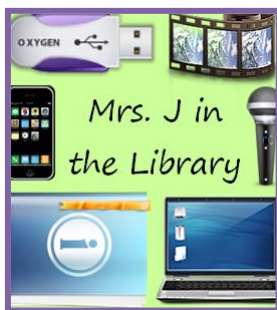
Visit Mrs. J in the Library's TpT Store at

http://www.teacherspayteachers.com/Store/Mrs-J-In-The-Library

Click HERE to provide feedback for this product.

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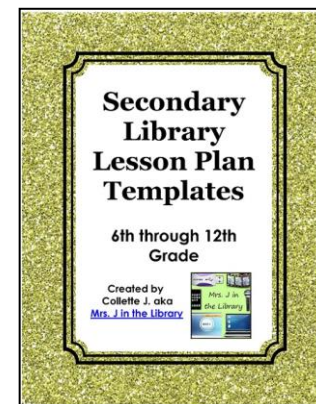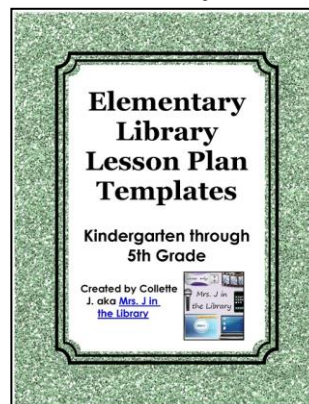**Library Makerspace DIY Center Bundle (Using littleBits™)**
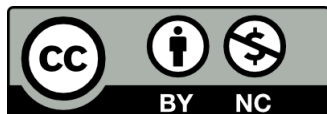Designed for Grades 3 – 6
Created by Collette J. aka Mrs. J in the Library

Library Makerspace / DIY Center Bundle

Elementary (K-5) Library Lesson Plan Templates

Secondary (6-12) Library Lesson Plan Templates

Elementary Library Lesson Plan Templates
Kindergarten through 5th Grade
Created by Collette J. aka Mrs. J in the Library

Secondary Library Lesson Plan Templates
6th through 12th Grade
Created by Collette J. aka Mrs. J in the Library

Questions and/or comments about this product can be sent to teacherlibrarian05@yahoo.com.