**Disney Magic Band**

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| **Lesson Objectives:**  *By the end of the class, the student will be able to……..*   1. Talk about wearable technology 2. Identify some challenges of sensor data 3. Identify some impacts of sensor data on daily life 4. Identify what to study in school if you want a career in STEM |

Target Audience: 5-8 Grade Students

Time Frame: 55 Minutes

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| **Time** | **Lesson Plan** | **Instructor Notes** |
| **5 min** | **Intro yourself & why you are here**   * Name, company, role, what you studied in school * STEM * Something cool about yourself & what you do at EMC * Transition to wearable technology | **Engage Students by asking:**   * Share something fun and personal - get them interested. |
| **Introductory Activity** | | |
| **3-4 mins** | **Activity Set Up**  **Tell Class:** Today we are going to plan a trip to Disney Land. One of the things you can do when you plan ahead is get a Disney Magic Band.  Disney Magic Bands are these rubber wrist bands that are designed to create a better customer experience. They act as:   * Park Entry * Location Tracking * Hotel Keys * Payment method (credit card link) * Special Activity Passes * Customer Sentiment * Restaurant reservations   Your objective is to have the most amount of fun in a span of 6 hours in the park. | **Engage Students by asking:**   * Who has been to Disney Land? * Have you ever tried magic bands? * Who are your favorite Disney characters? * What are your favorite rides? |
| **10 mins** | **Activity – 10 minutes**   1. **Tell Class:**    * Have students count off to determine groups. See right column    * Have student get into their groups    * Group names are sequential (1,2,3) 2. **Tell Class:** Each group will be given a map of Disney Land and a sheet of wait times for the most popular rides. As a group chose which rides you want to ride in order to maximize your fun. Rank your favorite rides as you go.   **Tell Class**:   * + - Each group chooses the rides they want to ride in order.     - You have to ride each group member’s favorite ride     - At the end, each group will share the number of rides they rode and the amount of time it took.  1. **Tell Class:** What if we had all of this data in real time? What if we could plug in our favorite rides, and we had an app on our phone calculate how we could have the most fun. What about other things we could do with all of the data the bands are collecting?   **Intro Activity Close:**   1. **Tell Class:** There is so much data being collected in the world around us. We can do remarkable things with this data. We can ride all of the best rides at our favorite amusement park. We can create sinks and toilets that work without us having to touch them.   **Ask Class:**   * What would you like to do with magic band data? | **Groups**  **20-** 5 groups of 4  **24**- 6 groups of 4  **25**- 5 groups of 5  **28**- 4 groups of 6 & one group of 4  **29**- 5 groups of 5 & one group of 4  **30**- 5 groups of 6  **31**- 5 groups of 5 & one group of 6  **32**- 4 groups of 5 & two groups of 6  **34**- 6 groups of 5 & one group of 4  **Teacher directions for #2:**   * Hand each group the map and timetable.   **Teacher directions for #3:**   * Show output of an optimized ride configuration based on ride times. * Write out the ideas that the kids come up with * Talk about privacy vs experience   **Teacher directions for #4:**   * Capture/write how class thinks sensor data can be used to change the world. |
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| **10 mins** | 1. **Ask Class:**  * Can anyone think of ***an example of other sensor technology***? * Cannot think of anything?   + Fitbits, Nike Fuel Bands?   + What about cell phones?  1. **Tell Class:** Now that we have examples ….what do you think some of the challenges with this kind of data? 2. **Ask Class:**  * Has anyone ever thought about …   + How you can use this technology to get better at sports?   + How you can use this technology to learn more about how people act?   + Where does all that invisible data live or where is it stored?  1. **Tell Class:** All those fun things create DATA. Big Data! 2. **Ask Class:** So what makes sensor data BIG DATA? A lot of it?  * Usage data from utility companies * Sensor data from athletes and athletic stadiums * Sensor data from animals in the wild * Sensor data from sattellites  1. **Tell Class:**  * Did you know that sensor data is used to help predict natural disasters and provide early warning in developing countries to save lives? * Did you know sensor data is used to evaluate environmental safety in wildfire zones?  1. **Ask Class:** Where does that data go? Where is it stored?   **Tell Class:** This is what EMC does!! We help companies store, share, sort, and analyze data!! Did you know EMC had over 50 thousand employees worldwide?  **Section Close:**   1. **Ask Class:** Considering how big EMC is….do you think all this data that is being created is valuable? **Why would** **Big Data Matter?**   Do you think it matters how the data is *USED*? How can the data be used? | **Teacher directions for #9**   * *Uncover the challenges on poster after class defines!* The challenges include storage, searching, sharing, and analyzing.   **Teacher directions for #11**  *Make Big Data real for them…*  **Teacher directions for #14**  *If you want, write students answers on the flipchart / chalkboard / whiteboard* |
| **Summarizing…..Closing out the Class** | | |
| **10 mins** | 1. **Tell Class:** Okay, so do you think we all have a good grasp of what Big Data is, some of Big Data’s challenges and how valuable it can be? Let’s recap anyway….  * **Ask Class:**    + Who can list some types of sensor data?   + Who can tell me what the challenges of using this data are?   + In what ways can this data be valuable?  1. **Tell Class:** Fantastic, good answers. More and more Data is generated every day. Big Data is just becoming BIGGER. And Big Data is creating so many opportunities – everywhere.   Now let’s finish up the class with YOU. Most cool things in life require and understanding of STEM related information. Any job or career these days are Big Data and STEM related.  **Ask a couple of Students:** What do you love to do? Can you use Big Data to help you, your family, and friends? Why or why not? What types of data would you like to see?  Close…..   1. **Ask Class:** Does this all make sense? Do you think Big Data is cool stuff?   I do. What is even cooler…… is where all this Big Data is stored!! Does anyone know where Big Data is stored? CLOUD!  To learn more about Big Data and Cloud – check out these animated videos….in this order:   * <http://bit.ly/WhyBigDataMatters> * <http://bit.ly/BigIdeasBigData> * <http://bit.ly/WhyCloudMatters> * <http://bit.ly/WhyTrustMatters> | **Teacher directions for #23**   * Big data is the term for a collection of digital data so large and complex that it becomes difficult to process. * The challenges include storage, searching, sharing, and analyzing.   **Teacher directions for #24**   * Thank class and teachers for their time   <http://www.emc.com/leadership/digital-universe/iview/index.htm> |