**Lesson 1 Scratch game planner Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Part 1: How does A Game of Cat and Mouse work? Use bullet points to record the components needed to create this game in Scratch.**

**Part 2: (follow along with the tutorial video)**

**Designer name:**  **Name of the game:**

**Brief game summary:**

**Goal of the game:**

**Pseudocode (steps needed)**

**Part 3: (now create your own as you update the game)**

**Designer name:**  **Name of the game:**

**Brief game summary:**

**Goal of the game:**

**What will make your game dynamic?**

**Pseudocode (steps needed)**

**What is pseudocode? Why is it important to use when coding?**

**Lesson 1 Arcade Day! Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Feedback from other players (leave this next to your game for others to leave comments):**

|  |  |  |  |
| --- | --- | --- | --- |
| **Reviewer name** | **I like****(Glows)** | **I wish****(Grows)** | **What If****(Suggestions/Ideas)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Lesson 1 A Game of Cat and Mouse Rubric Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |  |
| --- | --- | --- |
|  | Present (10 points) | Not present (0 points) |
| Completed A Game of Cat and Mouse tutorial |  |  |
| Created pseudocode for own version of A Game of Cat and Mouse |  |  |
| Explained pseudocode |  |  |
| Explained why pseudocode is important |  |  |
| Explained what will make own game dynamic  |  |  |
| Coded a game similar to A Game of Cat and Mouse |  |  |
| Made the game dynamic |  |  |
| Incorporated additional graphics or sounds to make the game engaging  |  |  |
| Provided feedback on classmates’ games |  |  |
| Stayed on task during the process |  |  |

**Lesson 2 Nervous system webquest**  Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Go to [www.brainpop.com](http://www.brainpop.com) and search for the video titled “Nervous System.” Watch it once and then rewatch it to help answer the questions below.
2. **Sketch a picture of the parts of the nervous system.**
3. **What is the difference between the autonomic and somatic nervous systems?**

2. On BrainPop, search for the video titled “Spinal Cord.” Watch it once and then re-watch it to help answer the questions below.

1. **Why is the spinal cord important?**

3. On BrainPop, search for the video titled “Neurons.” Watch it once and then re-watch it to help answer the questions below.

1. **A neuron is a nerve cell. What are some examples of other types of cells?**
2. **How does the structure of a neuron affect the way it functions? (How does the design of the neuron help it perform its job?)**
3. **Sketch and label a diagram of a neuron. Briefly explain what each part does.**
4. **How does a neuron/nerve in your foot get information to the brain?**

4. Watch this StudyJams video about the nervous system. When you are done, click the “test yourself” button and take the quiz. <http://studyjams.scholastic.com/studyjams/jams/science/human-body/nervous-system.htm>

**Now that you’ve watched several tutorials, define the following terms:**

|  |  |
| --- | --- |
| Nervous system |  |
| Brain |  |
| Spinal Cord |  |
| Neuron  |  |
| Vertebrae |  |
| Impulse |  |

5. View this interactive to learn how a neuron actually fires. Make sure to click on all 5 tabs and read through all information. <https://apps.childrenshospital.org/clinical/animation/neuron/>

**A: How do neurons send messages through a neural circuit? (Hint: Last tab)**

6. Try out this game: <http://ncase.me/neurons/>

7. Play this game to build a neuron: <http://learn.genetics.utah.edu/content/addiction/madneuron/>

8. Check out this website with a game about axons. Prior to playing, click on the bubble that says “The Science” and read that portion. Then read the directions bubble and start playing.

<http://axon.wellcomeapps.com/>

**9. Write a brief summary about what stuck with you today during the webquest.**

**Lesson 5 Persona Scenarios**

**Scenario 1: Mia**

Mia is a 6 year old who had an accident that resulted in a spinal cord injury. She is completing physical therapy to regain the use of her legs. She will do the therapy in a pediatric physical therapy office. Mia was interviewed to find out more about her background. Here are the results:

**What do you like about therapy?** There are a lot of activities I get to try each time. The time goes by fast. It is fun. We play games.

**What do you dislike about therapy?** Sometimes I get tired.

**What motivates you to do your therapy?** I get treats at the end, like ice cream or stickers. Everyone cheers for me.

**Describe the setting where you do your therapy:** It’s at the therapist’s office. There are lots of colorful toys in the room. It looks like a big playroom. Sometimes it looks like an indoor playground.

**How has your injury affected your life?** I have a wheelchair and I need help getting around. I can stand up on my own, but I can’t walk yet. I don’t get to run around with my friends.

**What are your interests?** I like superheroes, cartoons, Legos, and animals.

**What kind of games do you like?** I like pretending.

**What are your favorite activities?** I like to sing and swim. I need help with swimming right now.

**What do you think about technology?** It’s super cool! I want a phone. My tablet has games on it too and that is awesome.

**Scenario 2: Mary**

Mary is an older adult who had a stroke. She is completing physical therapy to regain the use of her right hand. She will do their therapy at home. Mary was interviewed to find out more about her background. Here are the results:

**What do you like about therapy?** I know it will help me get better. I can see how I’ve improved the use of my hands over time. I think I will continue to improve.

**What do you dislike about therapy?** Some days, my hand trembles more than usual and it is frustrating. Since I do the therapy on my own, I don’t really have anyone to encourage me.

**What motivates you to do your therapy?** Regaining the use of my right hand will help me be more independent. I won’t need help doing everyday tasks if I get better.

**Describe the setting where you do your therapy:** I do my exercises usually on the couch or outside on a patio chair. I will watch TV or listen to music while I do the therapy.

**How has your injury affected your life?** My right hand is my dominant hand, so it has been hard to adjust to using my left hand frequently. It is challenging to do daily tasks, like buttoning buttons, typing, and cooking. I often need others to help me with these things. Strokes are traumatic events so the recovery has been a long process for me and my family.

**What is your background?** I have lived on the West Coast my entire life. I have a degree in Botany and I work for a company that manufactures pottery, which can be used for home decorating or for potting plants.

**What are your interests?** I gardening. I grow vegetables and flowers. I like to paint, sew, and play piano. I like watching HGTV.

**What kind of games do you like?** I like to play card games.

**What are your favorite activities?** I like hiking and entertaining. I like to be outdoors. I volunteer as a tour guide at the local art museum.

**What do you think about technology?** It can be helpful, but it is annoying when it doesn’t work properly. I like to keep things simple.

**Scenario 3: Bennett**

Bennett is preteen who had an accident that resulted in a spinal cord injury. He is completing physical therapy to regain the use of his arms. He will do the therapy in a pediatric physical therapy office. Bennett was interviewed to find out more about his background. Here are the results:

**What do you like about therapy?** It is like going to a sports practice. It’s like getting a workout. Everyone there knows me really well.

**What do you dislike about therapy?** I would rather being with my friends. They don’t get to come with me.

**What motivates you to do your therapy?** I need to get better so I can play baseball and basketball again, although it might be from a wheelchair.

**Describe the setting where you do your therapy:** It happens at the therapy clinic. It has some kiddie toys in the room, but then there is bigger equipment, like exercise bikes and treadmills too.

**How has your injury affected your life?** I cannot move my body very well. I have a wheelchair and can’t use my legs right now. I am working on moving my arms more. They feel very weak and I have to think about moving them really hard. I can’t play throw a baseball or shoot a basketball very well.

**What is your background?** I am getting ready to start middle school and I live with my parents and older brother. My parents own a pizza restaurant so I am there a lot.

**What are your interests?** Sports! Video games. Music - like Zach Brown Band. I want to learn guitar one day.

**What kind of games do you like?** I like apps for my phone, like Pokemon Go and Clash Royale. I also like Playstation stuff.

**What are your favorite activities?** I like playing/watching baseball and basketball. I like to eat. I like to watch stuff on Cartoon Network and secretly I like Disney Channel.

**What do you think about technology?** I couldn’t live without it. I use my phone all the time and I always have the tv on. And my tablet.

**Scenario 4: Brian**

Brian is a young adult who had a stroke. He is completing physical therapy to regain the use of his fingers. He will do his therapy in a gym-like therapy facility. Brian was interviewed to find out more about his background. Here are the results:

**What do you like about therapy?** It is a good workout and the coaches/therapists are friendly. I used to go rock climbing frequently, and many of the hand exercises remind me grip strength training.

**What do you dislike about therapy?** It gets boring and repetitive.

**What motivates you to do your therapy?** I am determined to regain the use of my fingers so I can do activities, like rock climbing or playing musical instruments.

**Describe the setting where you do your therapy:** I have therapy at a therapy center. It looks like a gym, but with special equipment that is modified to help people who need more support. There are exercise balls, weights, bicycles, etc.

**How has your injury affected your life?** The stroke was scary. I have had some issues with short term memory loss. I also get tired very easily. The fingers on my right hand do not have much dexterity and they feel stiff.

**What is your background?** I have lived in Atlanta my entire life. I recently graduated from college and I just started working for a company that sells outdoor sports equipment.

**What are your interests?** I like adventure sports, like rock climbing, mountain biking, and surfing.

**What kind of games do you like?** I like to play yard games, like cornhole, ladder ball, bocce ball.

**What are your favorite activities?** I like camping and hiking. I also like perfecting my burger recipes on the grill. I love going to the park with my dog.

**What do you think about technology?** I like being able to easily access most everything on the internet and I like being able to easily communicate with my friends. But I like to unplug sometimes too.

**Lesson 5 Dynamic Therapy Game Planner**

Name:

Group members:

**Part 1**

1. Decide as a group which scenario you will pursue. Why did you make that choice? What type of therapy/movement will your game need to focus on?

2. Provide background information on the injury. What is it and what causes it? How is it related to the nervous system? Why is physical therapy needed?

**Part 2 - Discovery Phase of Design Thinking**

3. How might you create a game that helps a patient stay motivated in therapy by using dynamic difficulty balancing?

4. What are the requirements for the game and controller?

5. What are the constraints (limitations) for the overall project?

6. What challenges might you have during the process of making a game and controller?

7. How can you overcome those challenges?

8. What don’t you think you have enough knowledge about to complete this project and how can you remedy that?

9. Who will use the game and for what purpose?

10. Where will the game be used in the real world? Where will it be stored in the real world?

11. What are examples of solutions that are already available?