**Brain Science of Inside Out**

In the opening scene, following her birth, Riley sees her parent’s faces and this forms her first memory. Is this realistic?

What is your earliest memory?

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How old were you when the event that was the basis for your first memory occurred?

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While an infant, the human brain is very immature and the circuits necessary for creating memories of events that will last a lifetime are not fully functional. Consequently, most people’s earliest memory occurred when they were three years of age or older.

The scene has Riley as a toddler in her high chair being fed by her parents. Her Dad tries to give her broccoli and she refuses it. When her Dad says she will not get dessert, she gets mad and has a tantrum. At this stage in her development, the movie shows Riley with five emotions: Joy, Sadness, Disgust, Fear and Anger. What other emotions can you think of that are not shown?

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Different memories are shown from Riley’s past that are associated with her five emotions. Our memories for life experiences combine the details of the events and the accompanying emotional experiences. Think of an experience that you have had that is associated with each emotion.

Joy - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sadness - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Fear - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Disgust - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Anger - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Riley’s memory is made up of islands for family, friends, hockey, etc. These are contexts and they provide the basis for organizing our memories. Other contexts might include: school, neighborhood, vacation, holidays, etc. Memories for specific events are associated with these contexts and serve to define the contexts. What are the islands, or contexts, that make up your memory and for each context, an example of a memory of a specific event?

Context Memory

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When Riley sees her new bedroom for the first time, her memories are in conflict with one another. Joy resolves the conflict by doing what is called, “reframing the situation.” This is a valuable skill for coping with difficult situations. Although, in reality, the ability to reframe situations is not something the emotions do, but is a skill or habit that people learn. Can you think of a situation that was scary or sad and you reframed the situation to make it happy?

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After the disappointment of the broccoli pizza, Riley and her Mom reframe the situation by thinking about happy, funny memories. Memories have the power to change our emotions. What is a happy or funny memory that you have that you can use to reframe difficult situations?

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After Riley tells her parents that she is going to bed, her emotions begin pointing out everything that is bad about her moving to San Francisco. They come to the conclusion that the move is a “bust.” Riley only has one positive emotion (Joy) and four negative emotions (Fear, Anger, Sadness and Disgust). Is it realistic for Riley’s emotions to be dominated by negative emotions? What other positive emotions do you think that she should have been given?

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Riley’s mother talks to her while she is getting ready to go to sleep and tells Riley how helpful it is that Riley is happy and makes everyone else in the family happy. People influence each other’s emotions. Happy people make other people happy. Who is someone that you know that is usually happy and you can rely on to make you happy?

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As Riley is starting her new day, the Train of Daydreams arrives with a supply of daydreams to help get her through her day. Everyone daydreams, and we all have recurrent daydreams that we return to again and again. What are some of your favorite daydreams?

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In Riley’s brain, it seems as if Joy is in charge. Over dinner, we see into the brains of Riley’s parents and other emotions seem to be in charge. Can you think of characters from books, movies or television for whom each of the different emotions seem to be in charge of their brains?

Joy - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sadness - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Fear - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Anger - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Disgust - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

At the dinner table, you see what happens when different emotional experiences interact with one another. Below are some emotional combinations. What do you think happens when they interact?

Person 1 Person 2 What happens?

Joy Joy \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Anger Anger \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Disgust Fear \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Joy Fear \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

In long-term memory, the Mine Workers are getting rid of memories that are not needed any longer. Some people believe that forgotten memories disappear and other people believe that forgotten memories are always there, but you cannot find them. What are some activities or subjects that were important to you a long time ago, but you have forgotten most of what you once knew?

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Can you think of something like the Triple Mint Gum jingle that you will never be able to forget?

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On their way to find the Train of Thought, Joy, Sadness and Bing Bong travel through Imagination Land. What would be in your Imagination Land? Think of it like an amusement park. Draw a map with the sections of your Imagination Land amusement park and show some of the attractions in each section.

In Dream Land, Joy, Sadness and Bing Bong go to Dream Productions, which is a movie studio where they produce dreams. Dreams combine memories of recent experiences with associations with other objects, people and activities. For each of the words below, write down the first word that comes to mind.

Garbage Truck \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Spider \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Flag \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Rainbow \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dinner Plate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Now create a story that combines each of the words that you entered above. The story should be dreamlike and should barely make sense.