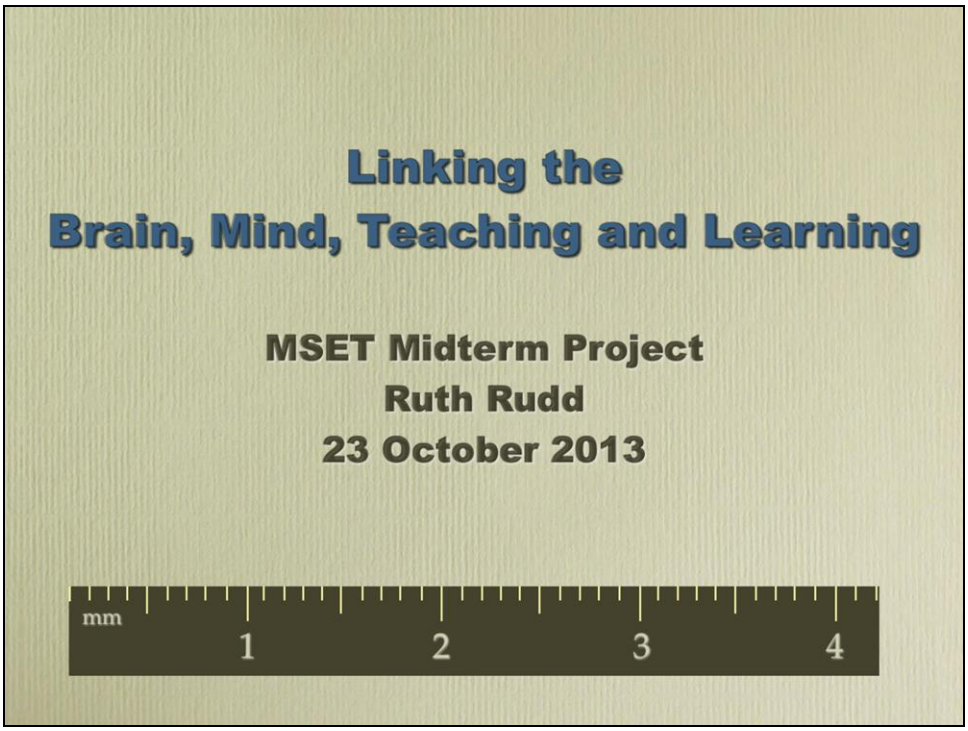
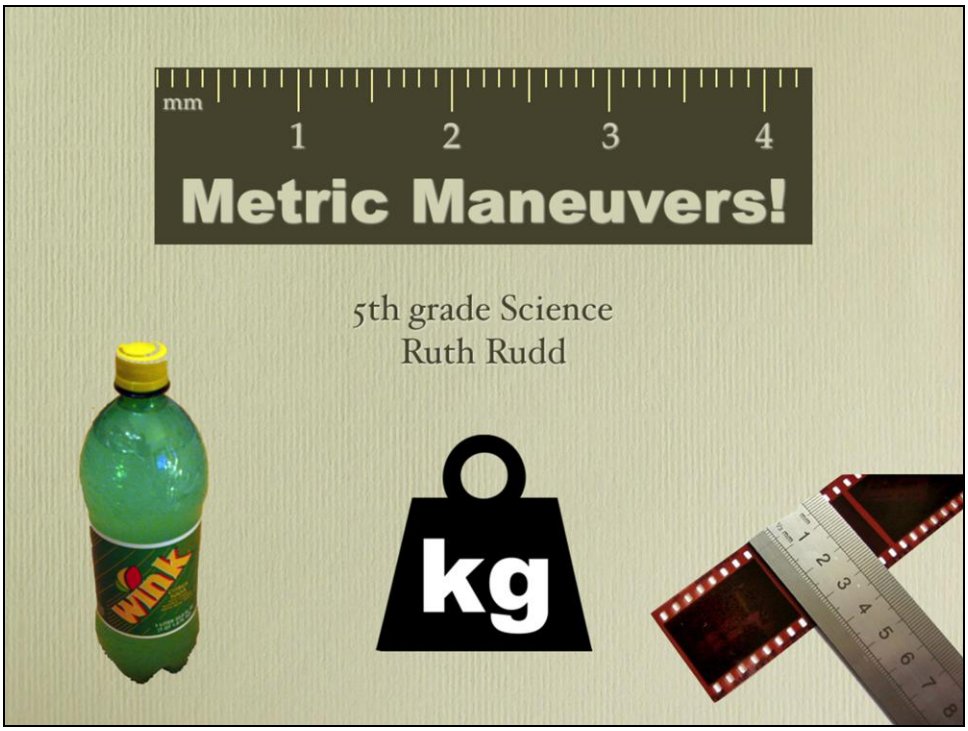
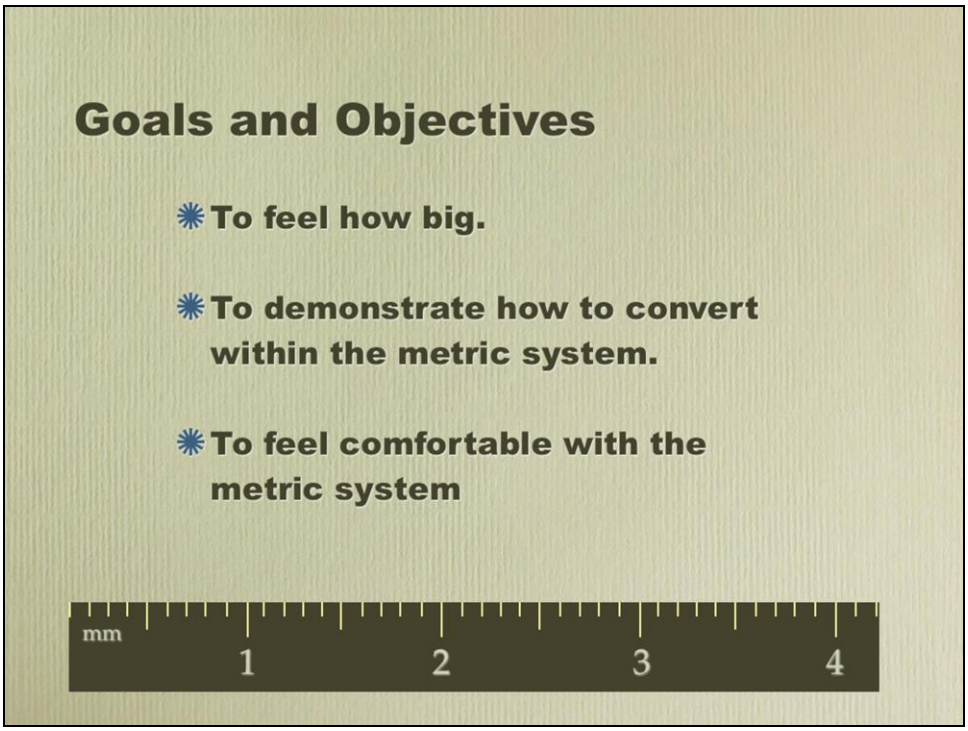


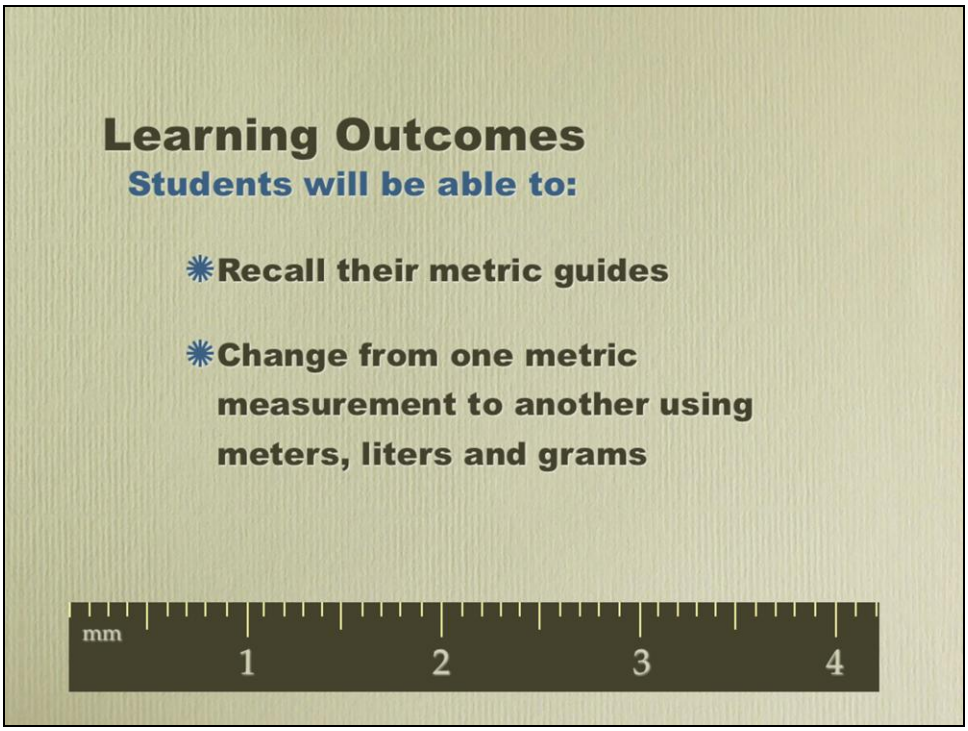
How can students learn about the metric system with technology that enhances and activities for learning that maximize on the way our brain works, reaching many intelligences and learning styles? What happens in their brains during such a class?



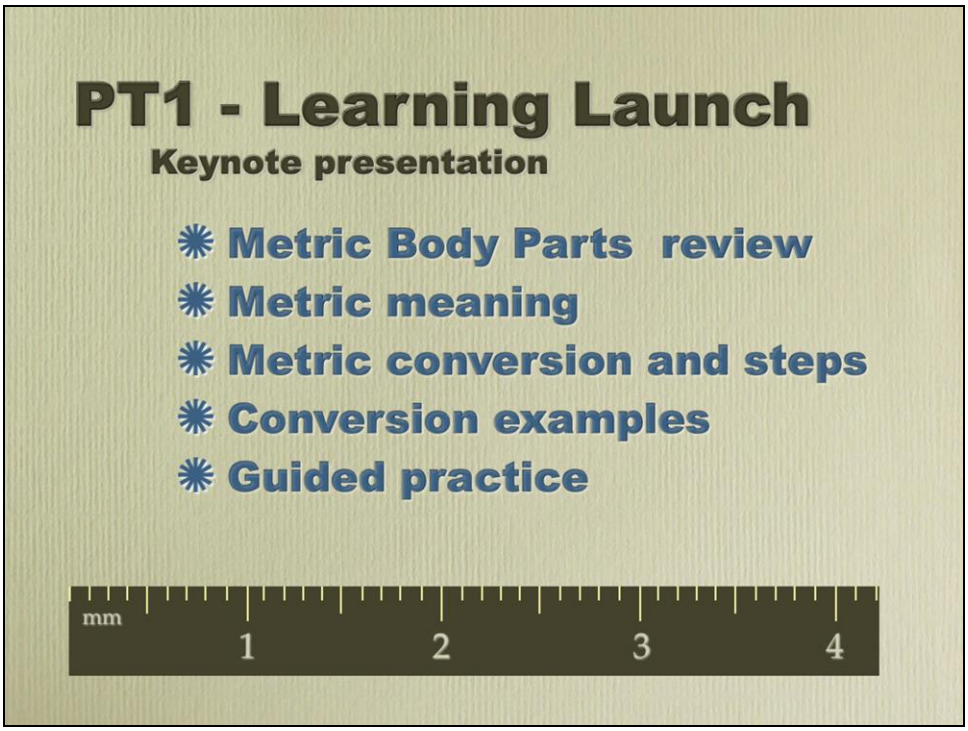
The metric system – what about it?It is the stuff of science and is used around the world as the standard. It is not our everyday system, but it is used here for medicines, wrenches, cross-country and marathon running and even just soda bottles.It is by far the easiest system for measurement and conversion as I hope the 5th grade science class students will see.



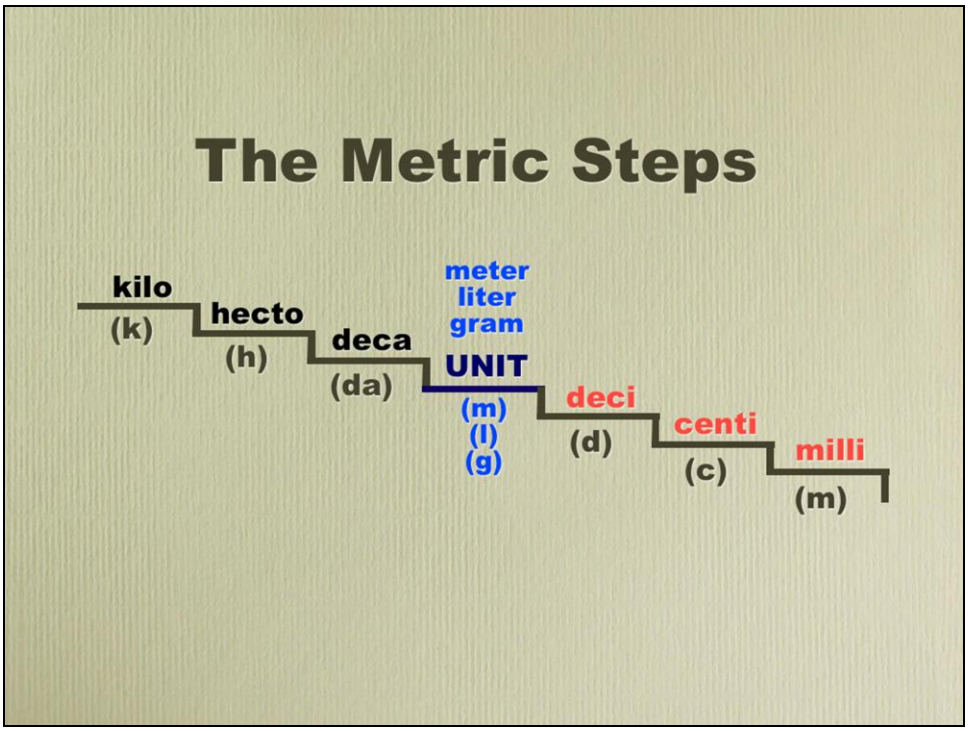
The students need to have a good gauge of the general magnitude of each of a meter, a gram, and a liter. They also need to be able to convert from one measurement to another within each unit. They need to be familiar with and get comfortable with the metric system.



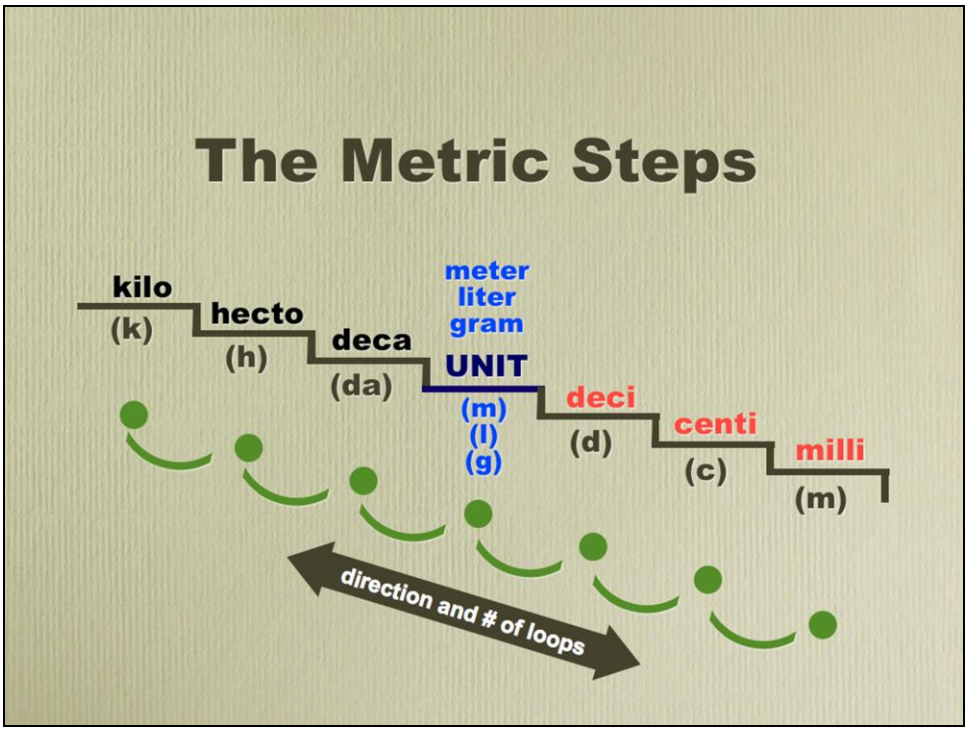
By the end of the lesson, students will be able to recall general sizes for the more common metric units and they will be able to convert within the metric system.



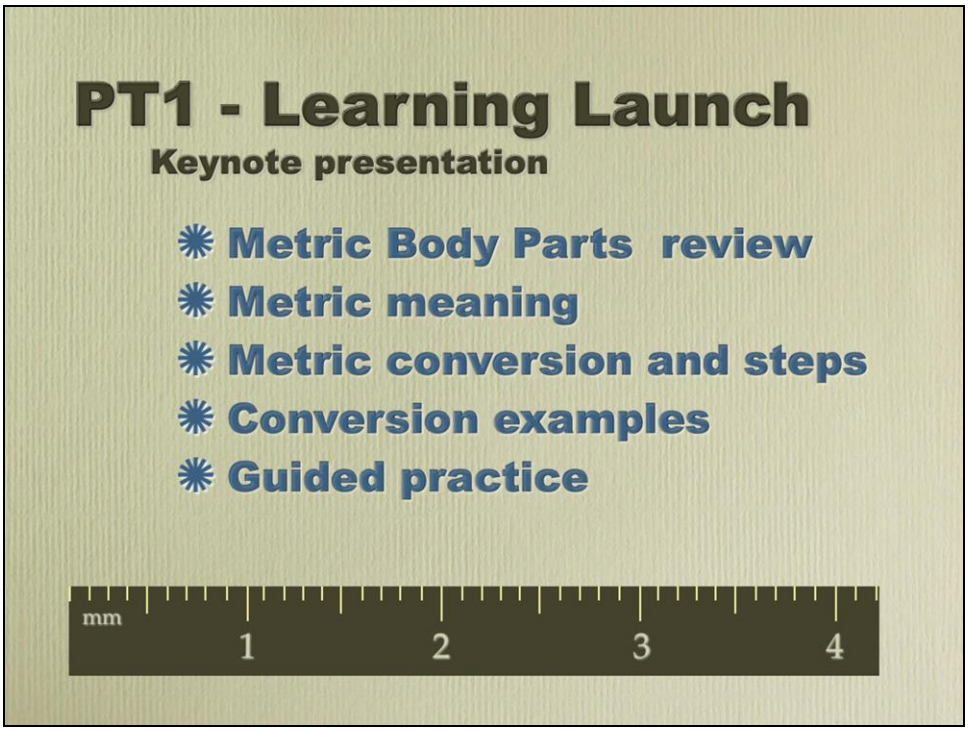
Using Primacy Recency strategies, the Prime Time 1 starts with a keynote presentation which augments the lesson.Everyone stands up to review the metric length body parts - mm, cm, dm, m - as well as mass and volume guides.



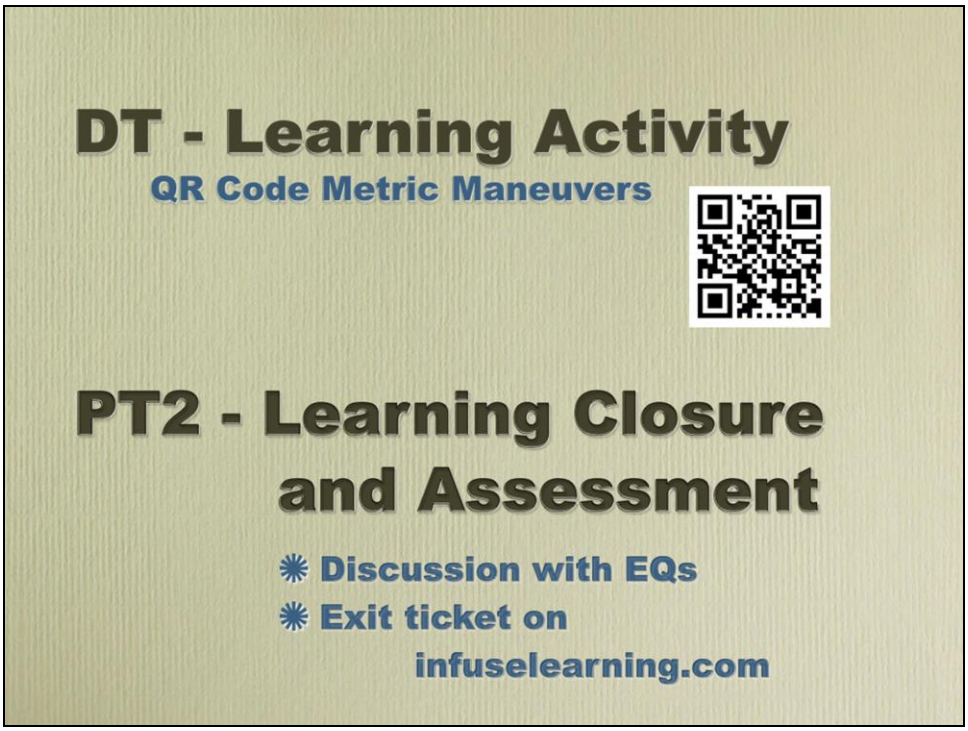
Some fun visuals and images lead into why they are learning metric conversion and then the metric steps to show conversion. Kilo, hecto, deca, UNIT, deci centi, milli



I continue with example problems that show how to convert using the direction and # of steps to move the decimal.

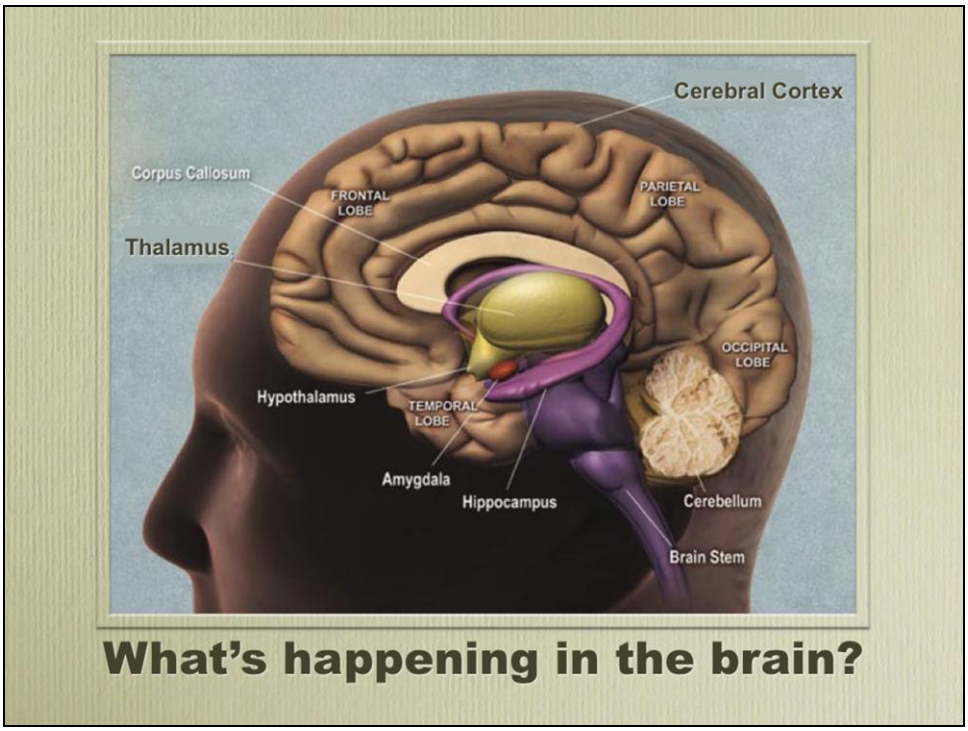


Finally, I have slides with practice problems in the ready for guided practice. Students will answer using on-the-fly open-ended text answer in the online response website -infuselearning.com. As I get their real-time answers on my laptop, I move around the room to help them.

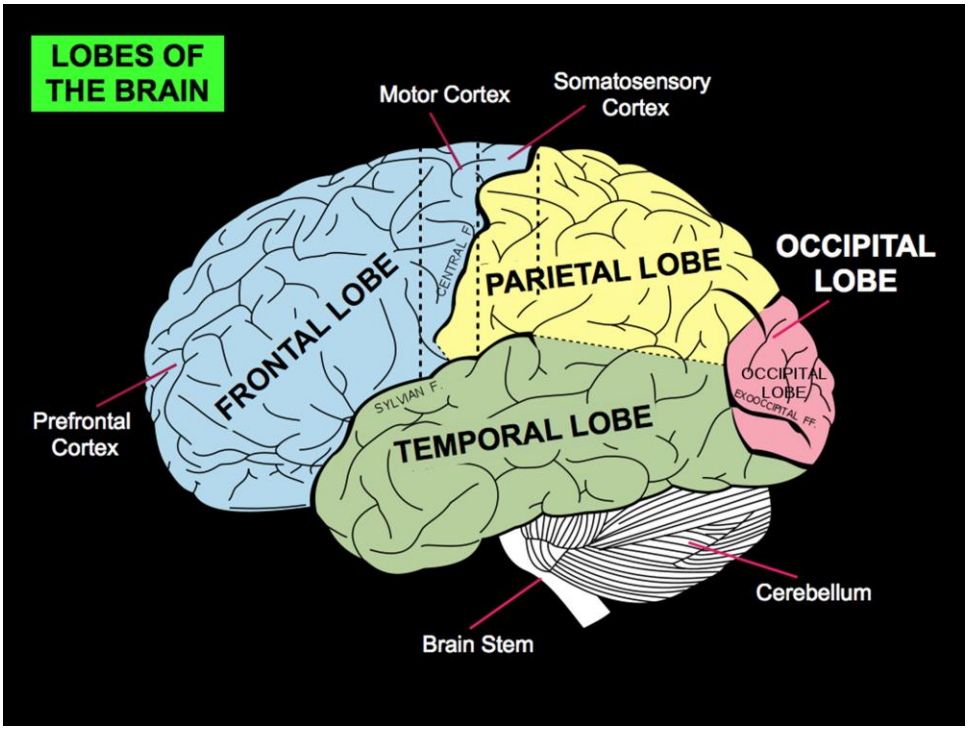


Down Time is the metric maneuvers activity. Pairs of students, armed with an iPad will hunt for QR codes around the room which will give them a metric conversion problem. They must complete the problem that they get and show me the answer. If they get it right, they can move on. If not they must redo it until they do get it right. Most right answers receives “metric crowns.”

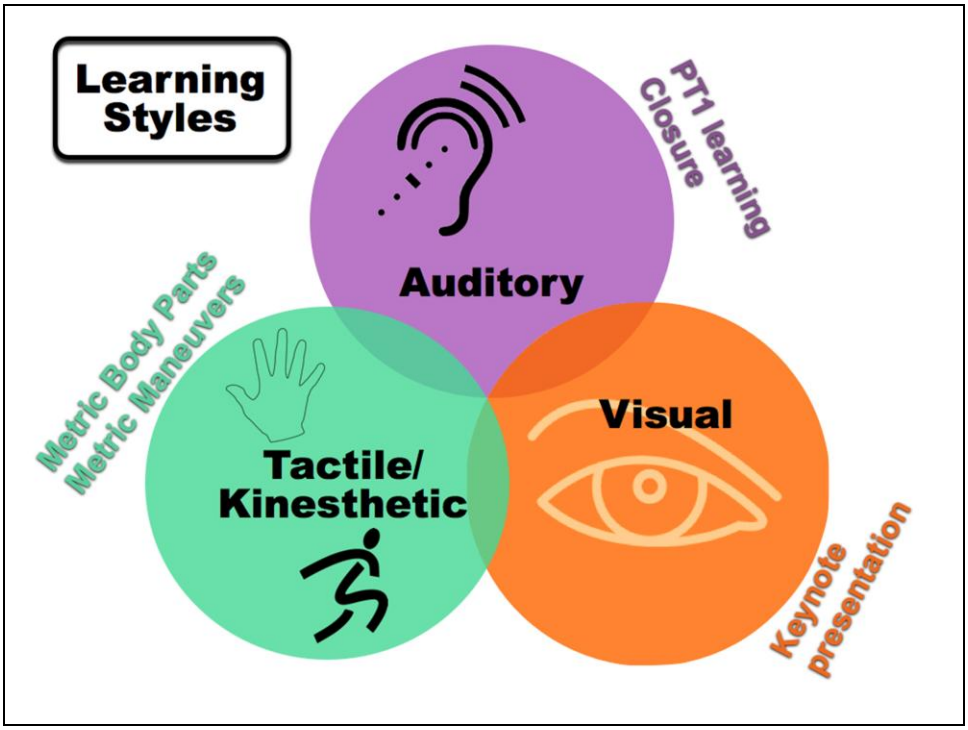
During Prime Time 2, we will have a closure discussion to reinforce meaning. Then students will have an online assessment, again using infuselearning.com - It is an exit ticket with 3 multiple choice metric conversion problems and an open-ended text answer concerning what they learned. .



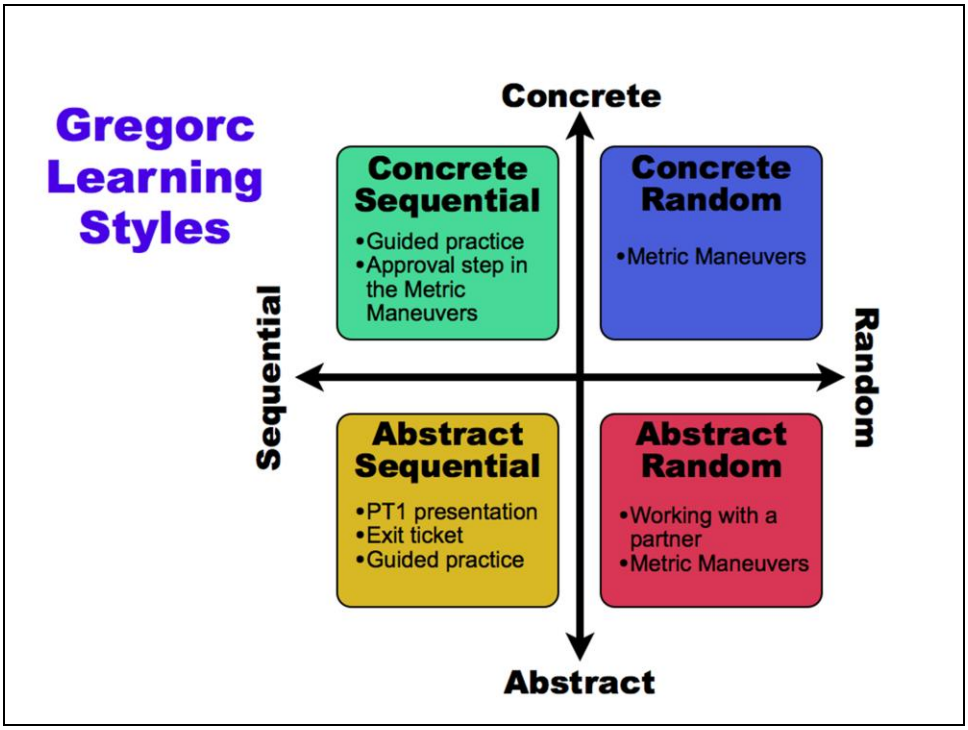
Let's see what's happening in the brain! The activities of the class, like metric body parts review, images on the presentation, chanting of the metric steps, movement around the room for the metric maneuvers, and the closure discussion, each stimulate the senses. Synapses are firing as the neurons of the peripheral nervous system bring the information to the neurons that compose the brain via the brain stem. The thalamus is the sensory gate. The sensory register, involving the reticular activity system and the thalamus send the information to immediate memory. Hopefully, the general fun of movement and chanting the new learning is perceived as interesting enough to pass it along to the working memory in the frontal lobe. The brain is a novelty seeker (Sousa 29). Each new activity of the class keeps the brain interested.In the frontal lobes, working memory is where conscious processing occurs (Sousa 48). At the same time, retrieval of information for the metric body parts review¥ from long term memory, which is in different parts of the brain (Sousa 55) is also happening.Overnight encoding of the information by the hippocampus during sleep and review the next day will strengthen the transfer of the new learning into long term memory.



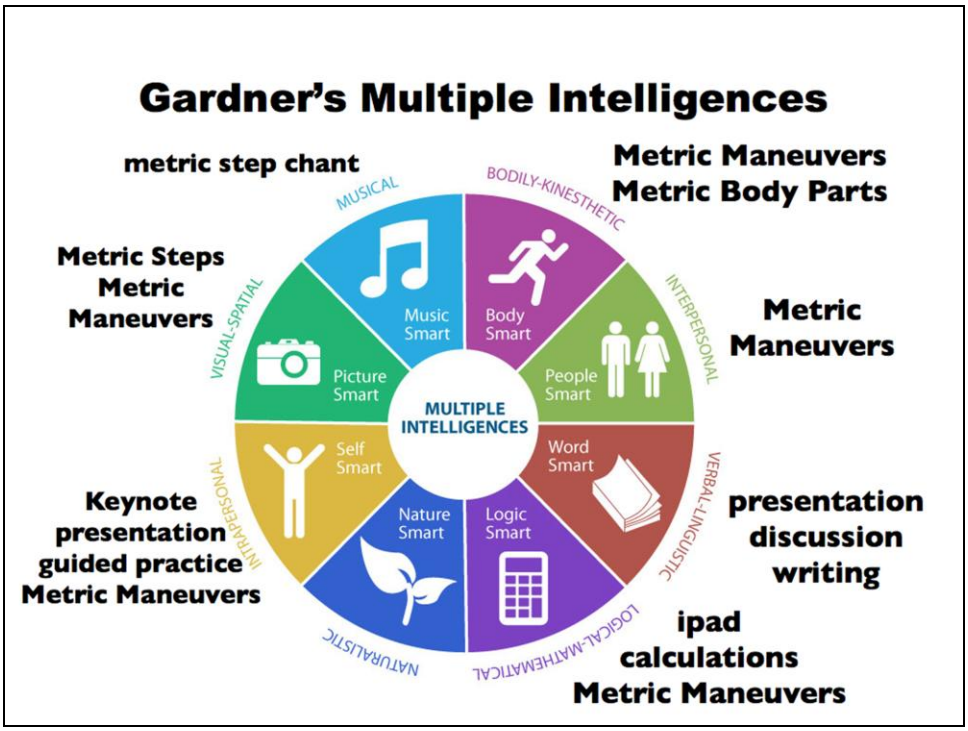
What else is going on in the lobes of the brain during each part of the lesson?During the Keynote presentation, visual processing, occurs in the occipital lobe, while aural processing occurs in the temporal lobe. The temporal lobe is also very active during the metric body parts review and the chanting of the metric steps. Movement during the QR code metric maneuvers takes place in the motor cortex. This activity is multi-sensory, as is the metric body parts review, and so it happens in the parietal lobe. The guided practice and metric maneuver problems require the parietal lobe for calculations as well as the prefrontal cortex for planning and thinking (Sousa 17). Since the class is fun and non-threatening, the amygdala will encode a good emotional message with the memory as it goes into long term storage (Sousa 19).Guided practice, rehearsal, independent practice helps to rework the concept, giving it **sense** and the Keynote presentation with metric uses and the discussion during closure helps to give the metric system **meaning** in order to store it into long-term memory



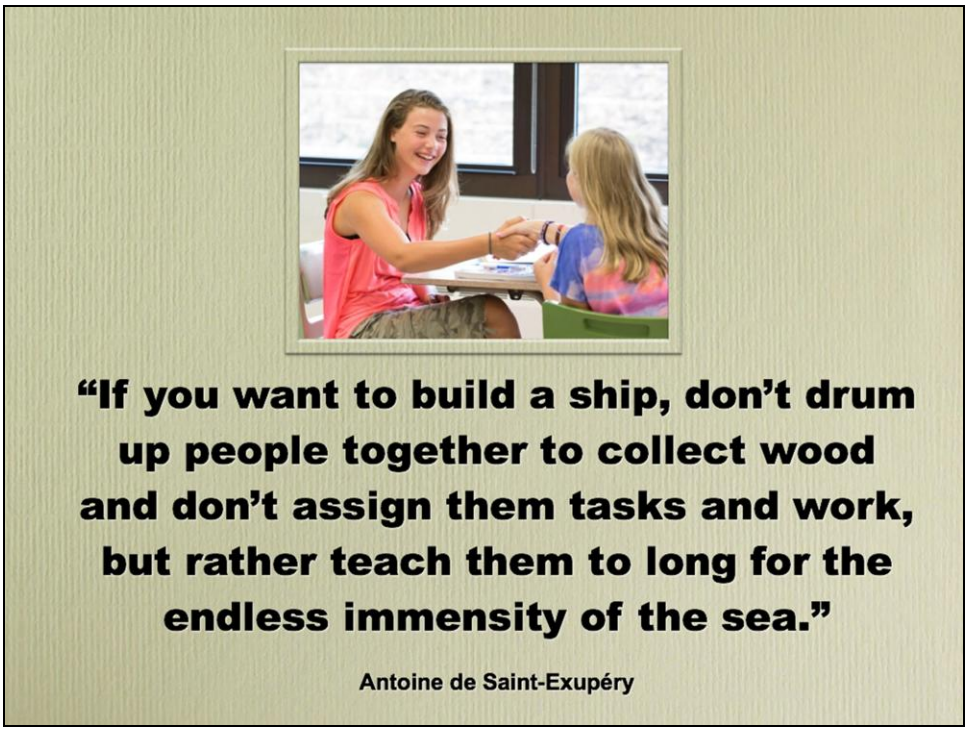
How does this lesson make the most of the learning styles and intelligences?About 50% of all learners are either **Tactile or Kinesthetic** (Learning Styles) and will learn best with the metric body parts and the Metric Maneuvers activities. **Visual Learners** will learn best through the Keynote presentation with its many images, including the metric steps. The initial learning session and the closure discussion will be the best avenue of learning for the **Auditory Learners.**



Using the Gregorc model, the **Concrete Sequential** learners will gather more info during the guided practice and will enjoy the approval during the metric maneuvers because of their desire for procedure. The **Concrete Random** learners like games and will learn during the disorderly, hands-on aspect of Metric Maneuvers. **Abstract Sequential** Learners will learn best from the organized presentation of PT1, the guided practice, and the thoughtful paragraph answer in the exit ticket. Optimum learning for the **Abstract Random** will happen in the partnership during Metric Maneuvers in the less orderly social atmosphere.



Looking at Gardner痴 Multiple Intelligences...**Verbal/Linguistic intelligence** will enjoy the presentation in Prime Time 1, the discussion during closure, and writing about what they learned in the infuselearning.com exit ticket.**Logical/Mathematical** - will enjoy using the iPad, the calculations involved in converting from one unit to another, and the challenge of the QR code game.The metric steps will help those with **Spatial** intelligence to grasp the concept of changing from one unit to another. They will enjoy the puzzle of converting, and the game of finding QR codes.Those with **Musical** intelligence will be attracted by the difference in speech patterns when listing the metric steps.**Bodily/Kinesthetic** will appreciate the QR code game to get up and move about and the gestures involved in the review of metric length body parts.Those with **Interpersonal** intelligence will enjoy the cooperative learning of the QR code game, while the **Intrapersonals** should learn easily from the Keynote presentation and will be self-directed during the QR code game, rather than enjoying the camaraderie it provides for the other social learners.



And if it is done right, learning happens!

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