



Part I – Messages and Actions

It was business as usual in their home and all was running smoothly. But, suddenly, Q, who was monitoring the flow of things, accessed some vital information and realized that it was time to relay a message to Z, one of the many other inhabitants of their home. Z needed to know that it was time to inform others! Therefore, Q sent a message to Z, whose residence was immediately below. Z received the message and immediately sprang into action, producing the items that were necessary.

Really, there were just two main items that needed to be sent. Yes, both items belonged to the same general category, but they were indeed different from each other and needed to be sent separately. First, however, greater quantities of those items had to be created, so Z got to work and quickly produced them. The creations needed to be sent out to a distant neighborhood, where Z's accomplices would gather them up and use them for some absolutely essential tasks. The tasks weren't dangerous, but they were extremely important and had to be on time. The two items needed to reach the neighborhood and be used by the accomplices in order to have the desired effects. Z's role was pivotal.

Z didn't waver about the task at hand and quickly sent the two finished products to the neighborhood accomplices, who were quite easy to contact even though they weren't located in the immediate vicinity. The accomplices received Z's products and promptly used them. They made some changes to themselves and also created their own products, sharing their creations with others in the neighborhood and in the larger region. All of these products allowed so many amazing experiences to occur throughout the area; many incredible changes happened, both observable and non-observable!

These were all truly life-changing messages and products that caused a cascade of events, events that would take years to reveal themselves completely. Things would never be the same again. There was no turning back.

Question

1. What material from class does the story relate to?

Part II – Changes

Now that you've read the story about Q, Z, and their accomplices, reread the story as the metaphor it is meant to be—a metaphor for the chain of events that occurs in the brain and body during puberty.

Questions

Please make sure to address both female puberty and male puberty for each of the following questions.

1. Q starts the process of puberty after monitoring the “flow of things” and receiving information. What part of the brain or body is Q?
2. According to current research findings, what sorts of information does Q monitor and receive that cause Q to send a message to Z?
3. What part of the brain or body is Z?
4. What is the name of the “message” that Q sends to Z?
5. Z produces two “items.” What are the full names of those two “items”?
6. The two “items” Z produces are both in the same superordinate category. What is the name of that superordinate category that the two “items” belong to? (Be specific and thorough.)
7. Z sends the two “items” to “accomplices” in a distant neighborhood. What parts of the brain or body are those “accomplices”?
8. After the “accomplices” receive the two “items,” they begin to change and they also create their own “products.” What changes occur in the “accomplices”? What are the names of the “products”?
9. The “products” produced by the “accomplices” are shared with others in the neighborhood and in the larger region. What brain or body parts are those “others in the neighborhood” and others “in the larger region”? And, what effects do those “products” have on those other brain or body parts?

Part III – Communication Patterns

During female and male puberty *negative feedback loops* occur between the gonads, pituitary gland, and hypothalamus. These negative feedback loops in the hypothalamic-pituitary-gonadal (HPG) axis are essential for normal pubertal development.



Questions

Please make sure to address both female puberty and male puberty for each of the following questions.

1. If you haven't already done so in your answers to Question 9 (in Part II – Changes), describe these negative feedback loops and the hormones involved in them.
2. Why are these negative feedback loops necessary?
3. Hypothetically, if an individual has too much FSH during puberty, what aspect(s) of the negative feedback loops in the HPG axis could be responsible for this occurrence?
4. Hypothetically, if an individual has too little LH during puberty, what aspect(s) of the negative feedback loops could cause this to happen?
5. Using your answers to all the previous questions, compare and contrast female pubertal development and male pubertal development. Use the table below (*Female and Male Pubertal Development: Similarities and Differences*) to list the similarities and differences in the pubertal processes between females and males. Be thorough.

Female and Male Pubertal Development: Similarities and Differences

Student's Name: _____

<i>Similarities</i>	<i>Differences</i>

Resources

Dubuis, J. 2016. *Puberty: Physiology*. <http://www.gfmer.ch/Endo/Lectures_10/Puberty_%20Physiology.htm>.

Sanfilippo, J., & Jamieson, M. (2008). Physiology of puberty. *Global Library of Women's Medicine*. doi: 10.3843/GLOWM.10286 <http://www.glowm.com/section_view/heading/Physiology%20of%20Puberty/item/285>.

Society for Endocrinology. 2015. *You and your hormones*. <<http://www.yourhormones.info>>.