THINKING LOG

And so to study the reward system, what we did is, not simply show people pictures of reward, which is what mostly happens in brain imaging studies, but instead what we did is we actually gave someone a reward. And what's something that people find rewarding? Sugar! So what we did is 4 reW*nBT/TT0 1 Tf0 Tc 0 Tw 0 Ts 100 Tz 0 Tr 12 0

The striatum is a key component of the _____system.

9. What does the striatum do when you receive, or get something rewarding?
The striatum releases _____.

10. What happens when kids, mice, rats, or monkeys get something they really like?
All of these animals respond, or react with _____in their _____when they get something they really like.

11. What is special about the functional magnetic resonance imaging scan (fMRI)?
The fMRI can take a _____, or picture of the brain while it is _____. That means researchers can take a _____of your brain while you are doing something you _____.

WX1 1 1 1 1 P [illegible]

_____

_____

_____

_____

_____ _____ _____

But to ensure that this wasn't just specific to something as simple as sugar, we gave people something else that everybody likes. And we did this while they were in the MRI. And what's something else that everyone loves to get? Money! Right? Everybody likes money. So we brought in a whole separate group of teenagers and adults, and this time we threw in a group of kids in there who were between about seven and ten. And we found that again, the part of the brain that was most responsive was the striatum, shown here on the left. This is a brain scan showing the average activation but what you can see really clearly is that, not only were the

So what does this all mean for behavior and for your everyday life? Well there are a few things. From my perspective this is really exciting time to study the teenage brain. Although scientists have made significant progress in understanding what makes a teenage brain unique, we still have a lot to learn.

˜ › 1 ’ — œ • Š — Œ Ž ð 1 Ž › Ž 1 “ ž œ • 1 — ˜ 1 œ • Š › • ’ — • 1 • ˜ 1 Š ™ ™ › Ž rewards and to emotions, might lead teenagers to make poor choices sometimes. But it also presents an excellent opportunity to seek out new adventures, to meet new people, and to confront interesting challenges in ways that people don't typically do later in life. And I predict that as we continue to conduct more of this research we will learn how to take advantage of the sensitivity of the brain during adoles cence to generate new ideas and to promote creative thinking. There's a lot that we can and will learn from the adolescent brain, and from adolescents in general in the coming decade. And perhaps we'll learn that taking risks and seeking out rewards are re ally adaptive behaviors in many contexts that actually lead to really good decisions, and that help individuals navigate the often challenging and intimidating transition from childhood to adulthood.

So with that I encourage you to savor the excitability of your teenage brain and to enjoy all the new people you meet and all the adventures you take. Thank you.

SUPPLEMENTARY QUESTIONS :

20. What is the research telling us about teenage brains?

This research tells us that _____ brains are _____. Teens more responsive to _____ and new _____.

21. What is the difference between the prefrontal cortex in teenagers and adults?

The prefrontal cortex is more developed in _____. The prefrontal cortex helps regulate, or control _____ response to rewards.

22. What is the author saying about teenagers and decision making?

Teenagers sometimes make bad _____.

23. What is the author saying about teenagers and adventure?

A. Teenagers can have _____.
B. Teenagers meet new _____.
C. Teenagers have new _____.

24. What might we learn from the teenage brain?
We might learn that taking _____ and seeking, or looking for, _____ are _____ behaviors.

RESPONSE TO GUIDING QUESTION 1:
How are teen brains different from the brains of adults and children, and how do we know?
Response:

_____
_____
_____
_____
_____
_____.

NEUROLOGIST NOTEBOOK

INSTRUCTIONS FOR STUDENTS:
Work with a partner. Use your neurologist notebook to write down key, or important , information from the video. You will write down main ideas and some details, or specific information, about each main idea. You can use information from your Thinking Log. Some information is already filled in for you.

WORD BANK:
adult, adults, adventures, challenges, children, decisions, experiences, information, money, people, positive, rewards, sugar, teens

Main Idea :
Teenage brains are different than the brains of _____ and _____.

Support 1:
Teenage brains have a stronger response to _____ than _____ brains. In the study, _____ brains responded to _____ more strongly than _____. In the study, _____ brains responded to _____ more strongly than _____ or _____. This may lead teens to poor choices sometimes.

Support 2:
Teens are more open to new _____ and _____

_____ _____

_____

_____

_____ _____

_____

PREPARE FOR WRITING / COMPARE AND CONTRAST

INSTRUCTIONS FOR STUDENTS:

Work with a partner to fill out the graphic organizer about teen brains.

- Use information from the Lesson 8 graphic organizer for the column on the left.
  œ Ž 1 ’ — • ˜ › – Š • ’ ˜ — 1 • › ˜ – 1 • ˜ • Š ¢ œ 1 Ÿ ’ • Ž ˜ 1 • ˜ › 1 • ‘ Ž 1 Œ ˜ • ž -
- Write ideas from the text and the video that are similar, or the same.
- Then write ideas from the text and video that are different, or not the same.
- W › ’ • Ž 1 ‘ Š • 1 • ‘ Ž 1 Š ž • ‘ ˜ž Šœ ž 1 › 1 Šœ 1 • ™ 1 žœ ™ ™ Ž Œ • ’ Ÿ, žš ð 1 ˜ › 1 ™ ’
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	_____ _____ _____ _____	_____ _____ _____ _____
	_____ _____ _____ _____	_____ _____ _____ _____

What do you think the Š ž • ‘ ˜ › œ & œ ™ Ž Š ” Ž perspective, or point of view, is?	This is a _____time for teens. Teenagersget into _____.	Sometimes teens make bad _____but it is also a time when teens learn and try _____things.
What is your perspective? And why?	This is a(n) _____ time for teens I think this because _____ _____ _____ _____	

		[redacted]

		development, and especially in teenagers.
thrills	something that makes you suddenly excited or happy	Because your brain as an adolescent is built to help you do that, compared to children and adults, the teenage brain is really good at seeking out new experiences, enjoying thrills , and seeking out risks.
transition	changing from one thing to another	The prefrontal cortex is starting to mature as teens transition into adults.