Questioning as Thinking: Using Questions to Guide Disciplinary Reading
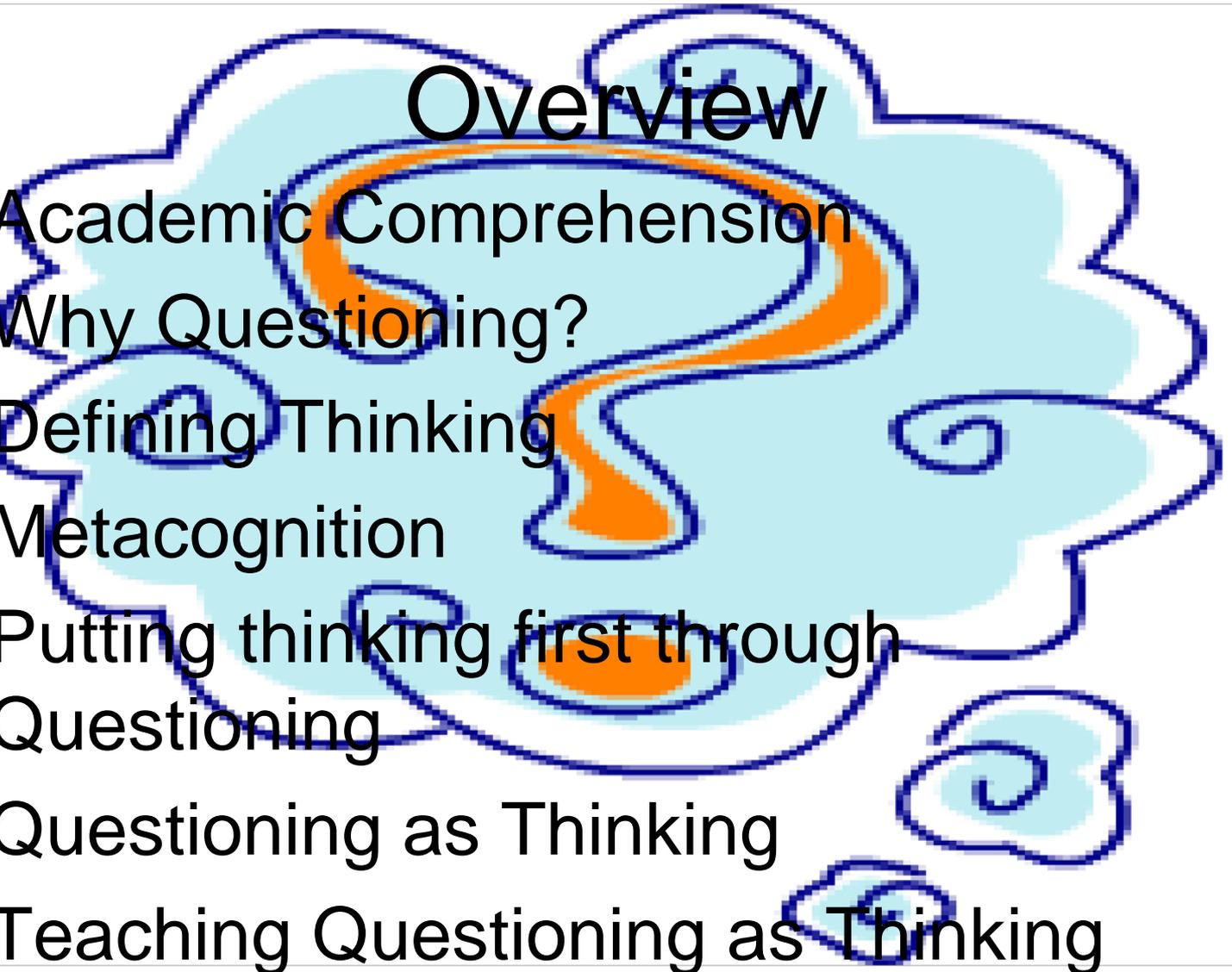
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Overview

- Academic Comprehension
- Why Questioning?
- Defining Thinking
- Metacognition
- Putting thinking first through Questioning
- Questioning as Thinking
- Teaching Questioning as Thinking

Why Questioning

"Question asking and answering can be viewed as the strategy that drives all of the other strategies. In other words, it is the process of asking and then answering questions of oneself and the text that brings the other strategies to life. What differs from strategy to strategy is the *type* of questions one asks of oneself or the text. Thus, helping students develop the ability to ask and answer questions of themselves and the text before, during, and after reading is an important part of the process of becoming a strategic reader."

Neufeld, P. (2005). Comprehension Instruction in Content Area Classes". *The Reading Teacher, 59, 4, 302-312.*

N.S. Wilson, 2007
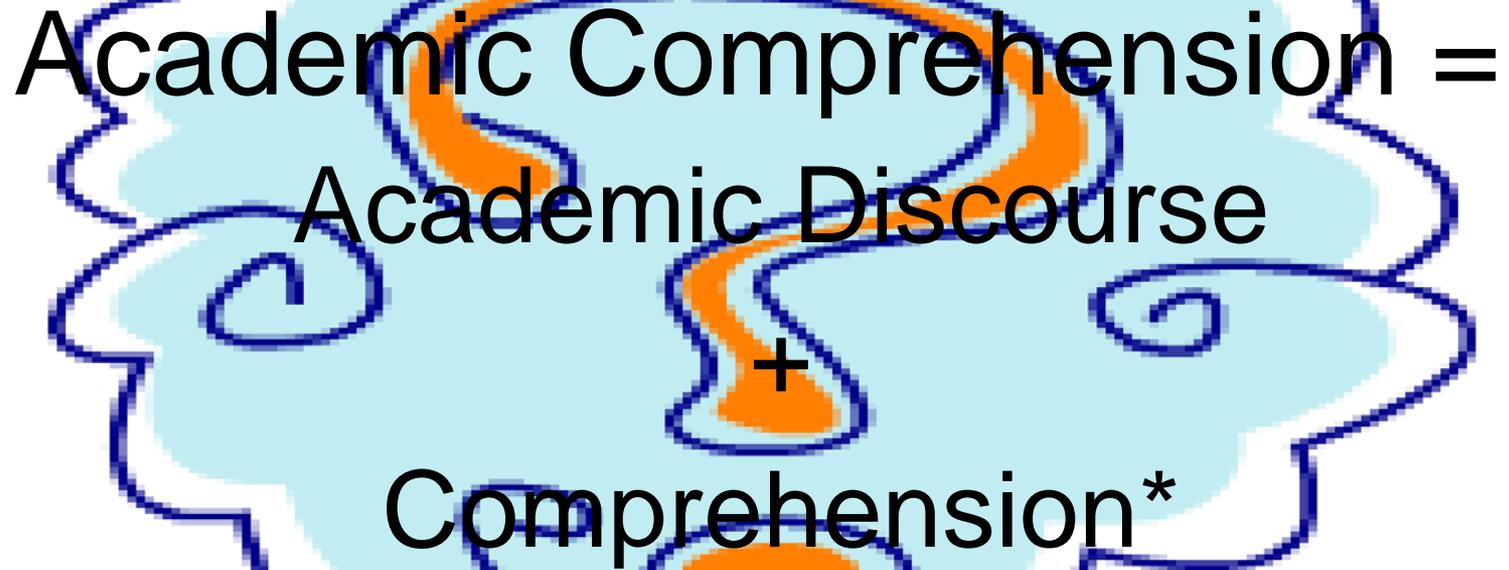
Academic Comprehension =

Academic Discourse

+

Comprehension*

Buehl, D. (2006) IRA. Academic Discourse + Comprehension is what content area teachers should be doing.
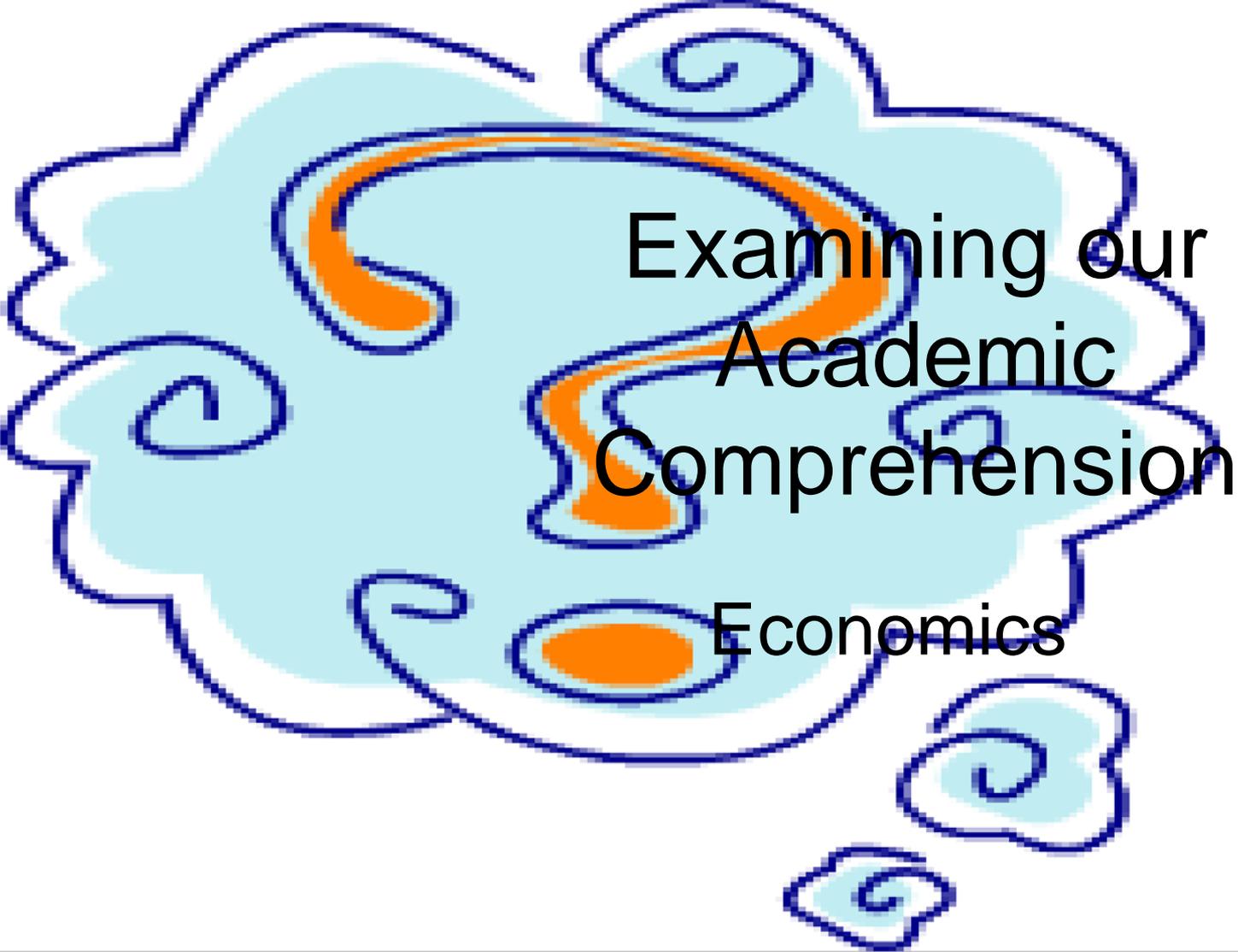
Examining our Academic Comprehension

Economics

After the slightly more than 5 percent real GDP growth in 2004—the highest in a generation—the world economy achieved nearly 41⁄2 percent growth in 2005. Despite sharp rises in world energy prices, this growth was still more than 1⁄2 percent above the potential global economic growth rate. For 2006, the prospect is for continued solid global economic growth but at a slightly slower pace than 2005—about 4 percent on a year-over-year (Yr/Yr) basis (using the IMF's World Economic Outlook's purchasing power parity [PPP] exchange rates to aggregate GDP across countries). This will mark the first time since the early 1970s when the world economy has expanded at more than a 4 percent annual rate for four years running. Substantial uncertainty is attached, however, to global growth prospects for 2007—linked primarily to uncertainty about the degree of monetary tightening that will be needed to insure against an undesirable rise of inflationary pressures and risks from energy prices, international payments imbalances, possible overextension in some financial markets, and the possibility of mutation of the H5N1 bird flu virus to intrahuman contagion.

From: Global Economic Prospects 2006/2007: Continued Solid Growth in 2006, Rising Risks for Inflation,

Financial Markets, and Growth for 2007. By: Michael Mussa Senior Fellow, Institute for International Economics

Answer questions about the text (Try to identify the QAR category for each question.)

- What will be a first for the economy since the 1970s?
- What are the issues leading to uncertainty in the 2007 economy?
- What does the growth in GDP mean to you and your family?
- What are some examples of how financial markets could be overextended?
- Why do you think the increase in energy prices did not have an effect on the real GDP growth?

How did you do?

- Would you have been helped by some background in discourse of economics?
- Would you have been helped by learning about the style of writing used of this economics text?
- Do you have academic comprehension in economics?
- Are you helping your students gain academic comprehension in your subject area?
- In answering the questions did you engage in higher order thinking skills?

Defining Thinking
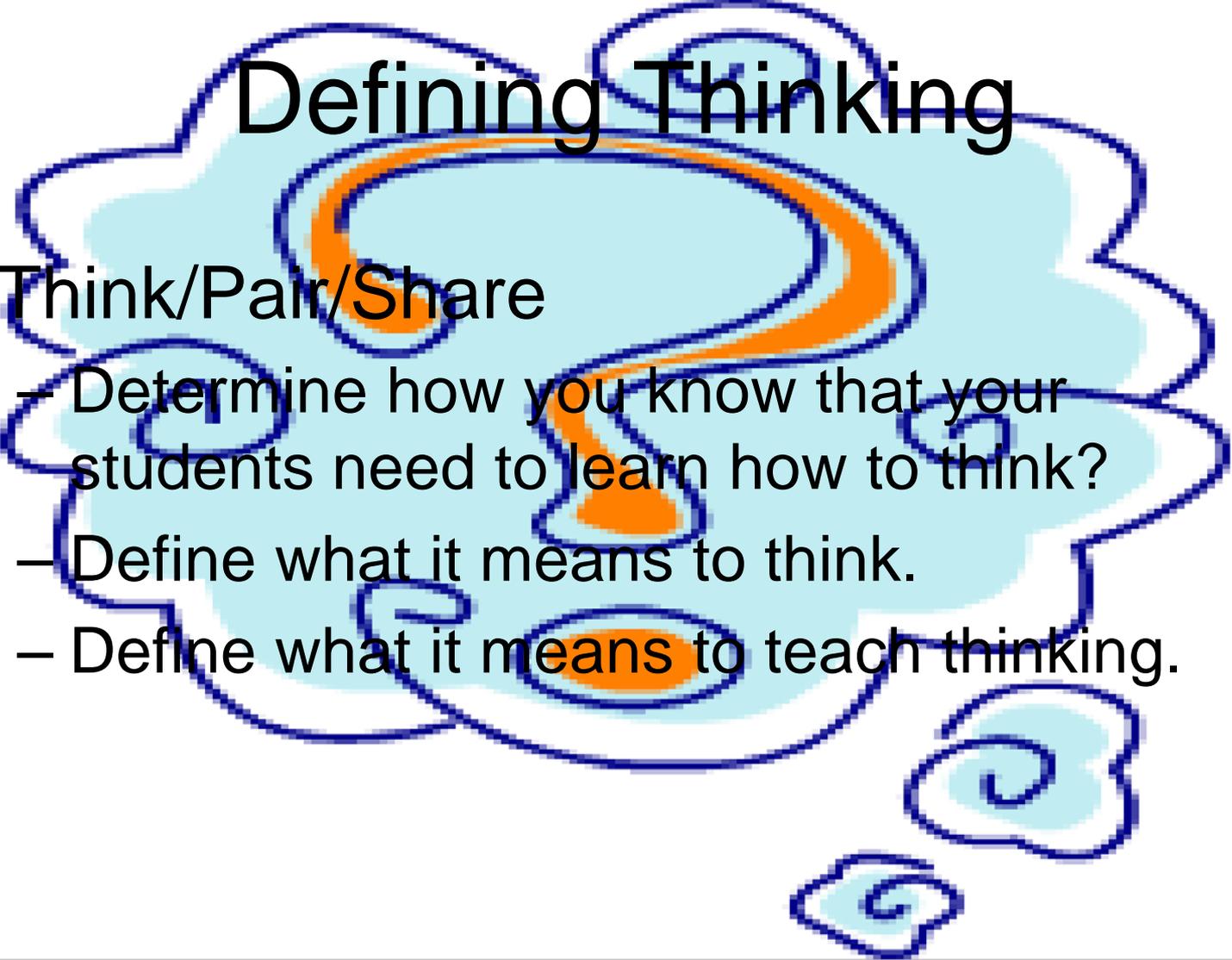
- Think/Pair/Share
  - Determine how you know that your students need to learn how to think?
  - Define what it means to think.
  - Define what it means to teach thinking.

Discussion on Defining Thinking
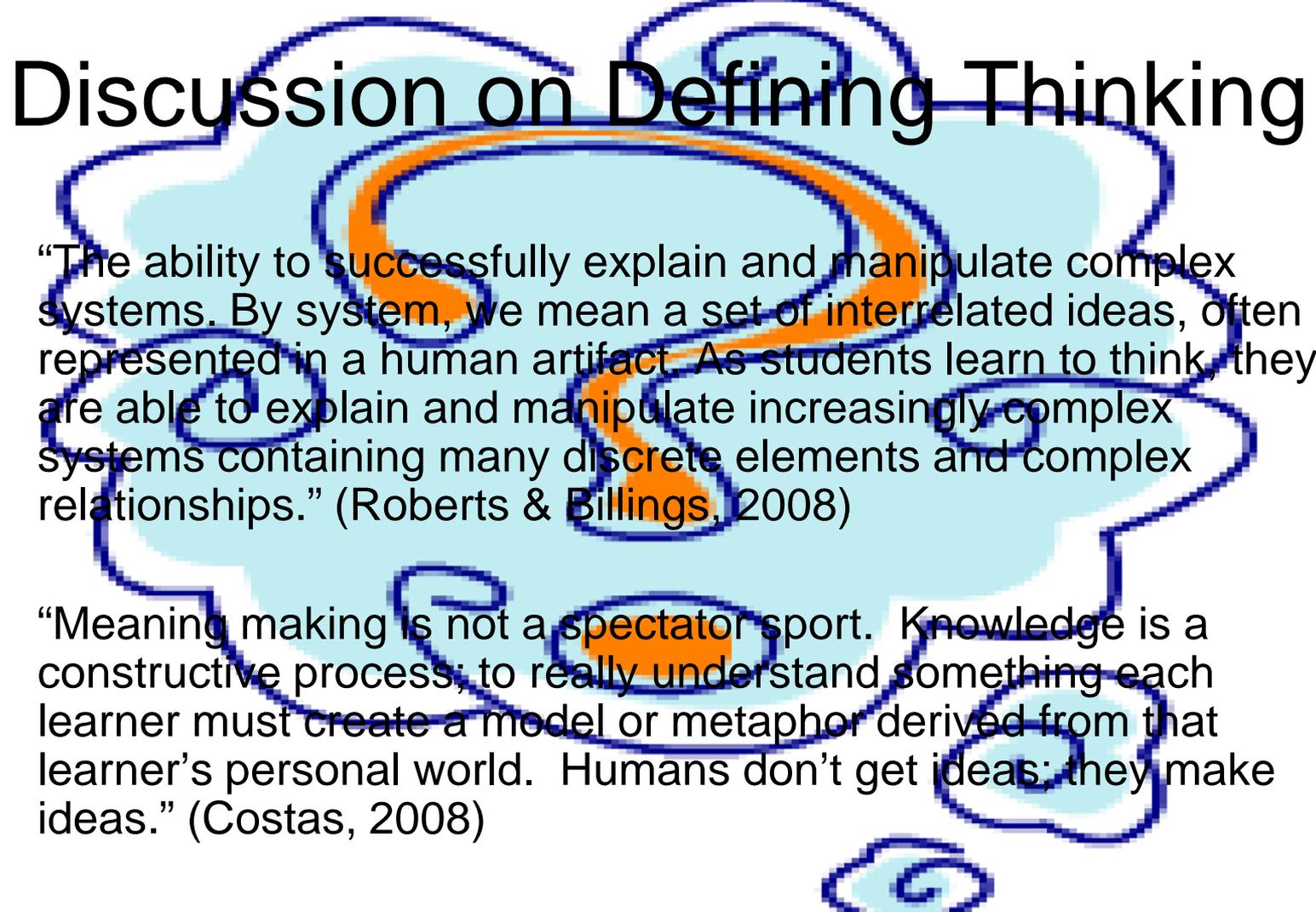
- "The ability to successfully explain and manipulate complex systems. By system, we mean a set of interrelated ideas, often represented in a human artifact. As students learn to think, they are able to explain and manipulate increasingly complex systems containing many discrete elements and complex relationships." (Roberts & Billings, 2008)

- "Meaning making is not a spectator sport. Knowledge is a constructive process; to really understand something each learner must create a model or metaphor derived from that learner's personal world. Humans don't get ideas; they make ideas." (Costas, 2008)

Metacognition is . . .

Thinking about one's Thinking

When a person is metacognitive they:

- Monitor understanding

- Determine the strategy/strategies they can use to improve understanding

- Implement the strategy/strategies

- Continually evaluate understanding

The Components of Questioning as Thinking

Questioning as Thinking is:

- Asking questioning during reading that activates prior knowledge, connects texts, and monitor's understanding

- Responding to questions during and after reading by thinking about the the source of information for a response, the content of the response, and the strategies necessary to respond accurately and efficiently

- Sharing one's thoughts about the mental processes necessary to ask or answer a question.
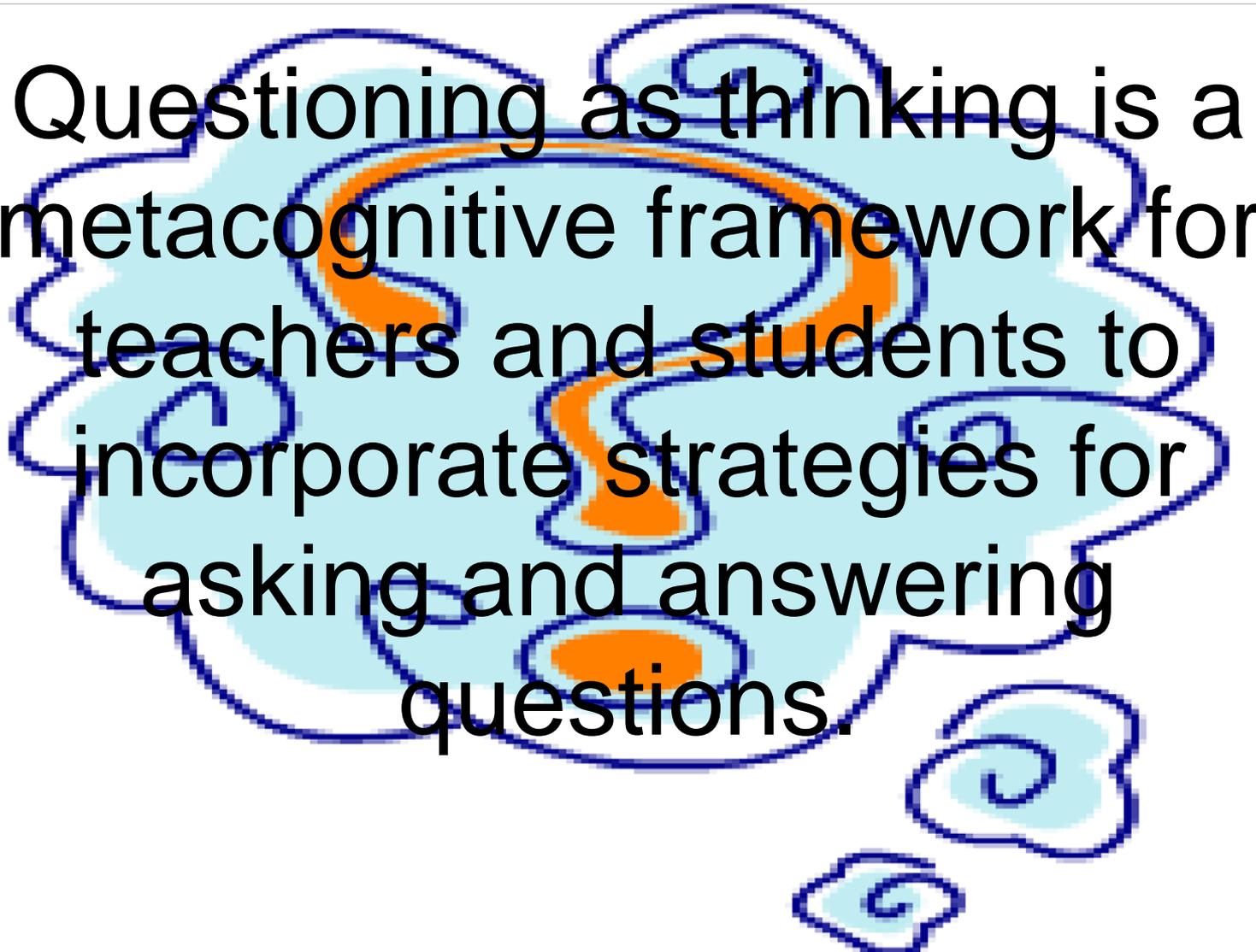
Questioning as thinking is a metacognitive framework for teachers and students to incorporate strategies for asking and answering questions.

The Components of Questioning as Thinking (QAT)

- **Question Answer Relationships (QAR)**

- **Questioning the Author (QtA)**

- **Visible Thinking with a common language**

QAT
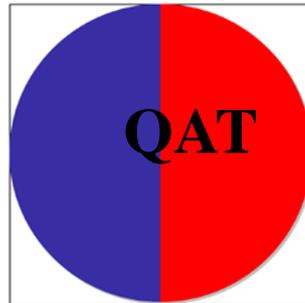
A brief definition of QAR

- Question Answer Relationships
  - A strategy that students can apply to questions.
  - Gives student the tools to analyze questions to answer questions appropriately.
  - Gives teachers common vocabulary to talk about question answer relationships across the content areas and grade levels.
  - Improves comprehension of materials
- 25 years of research
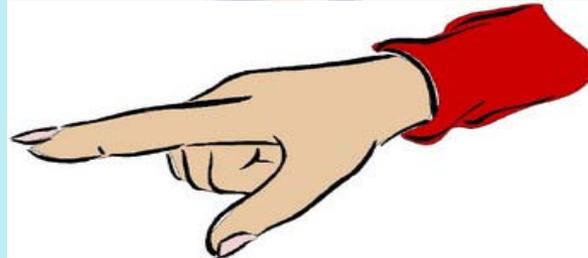
QAR: An Overview

In the Book

In My Head

Right There **Think & Search** **Author & Me** **On My Own**

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In the Book

Right There:

A "detail" type of question, where words used to form the question and words that answer the question are often "right there" in the same sentence.

Think & Search:

The answer is in the text, but readers have to "think & search" to find the answer; sometimes within a paragraph, across paragraphs, or even chapters.

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In My Head

Author and Me:

The information to answer the question comes from my background knowledge, but to even make sense of the question, I'd need to have read and understood the text.

On My Own:

The question relates to the text, but I could probably answer this one even if I had never read the text. All the ideas and information come from my background knowledge.
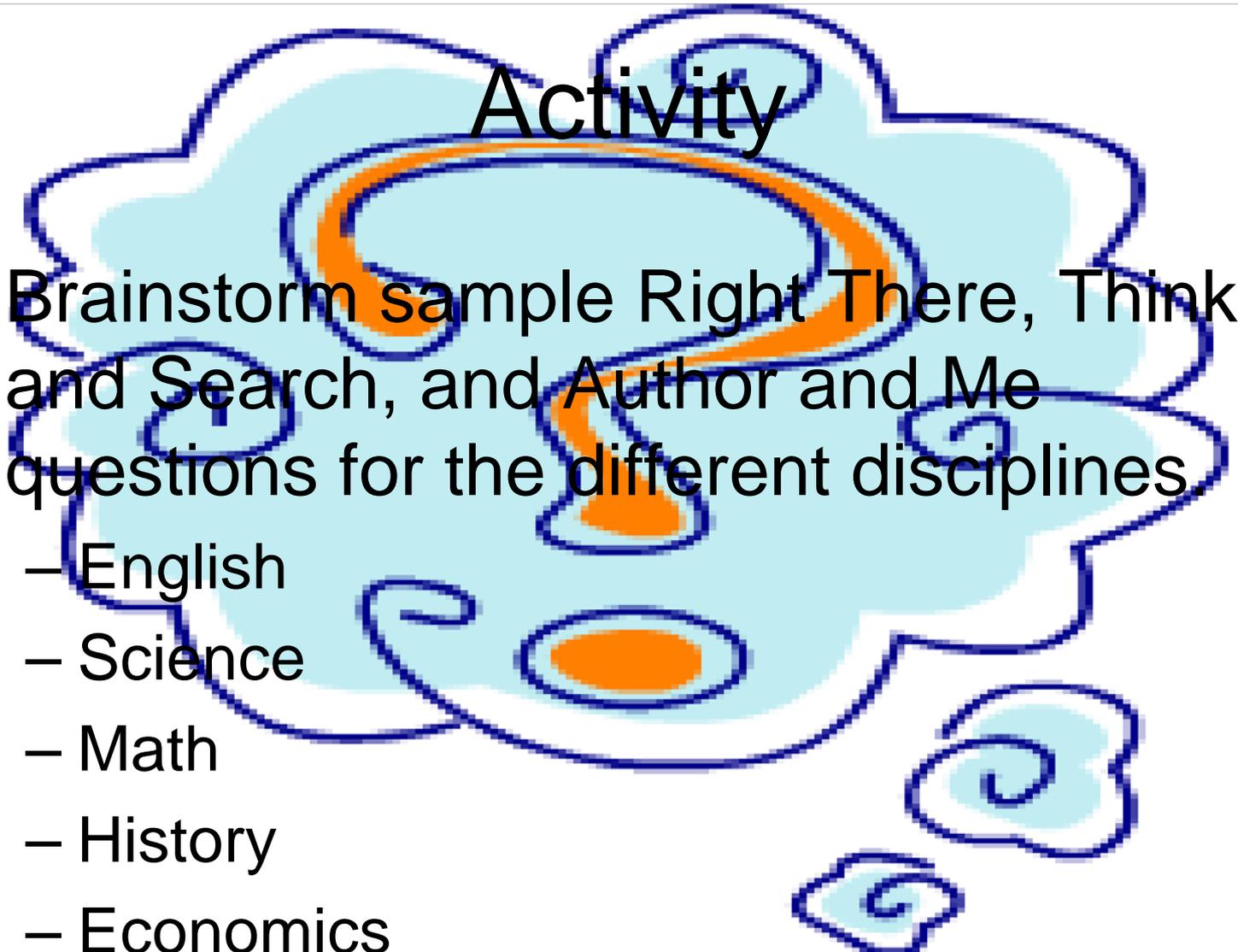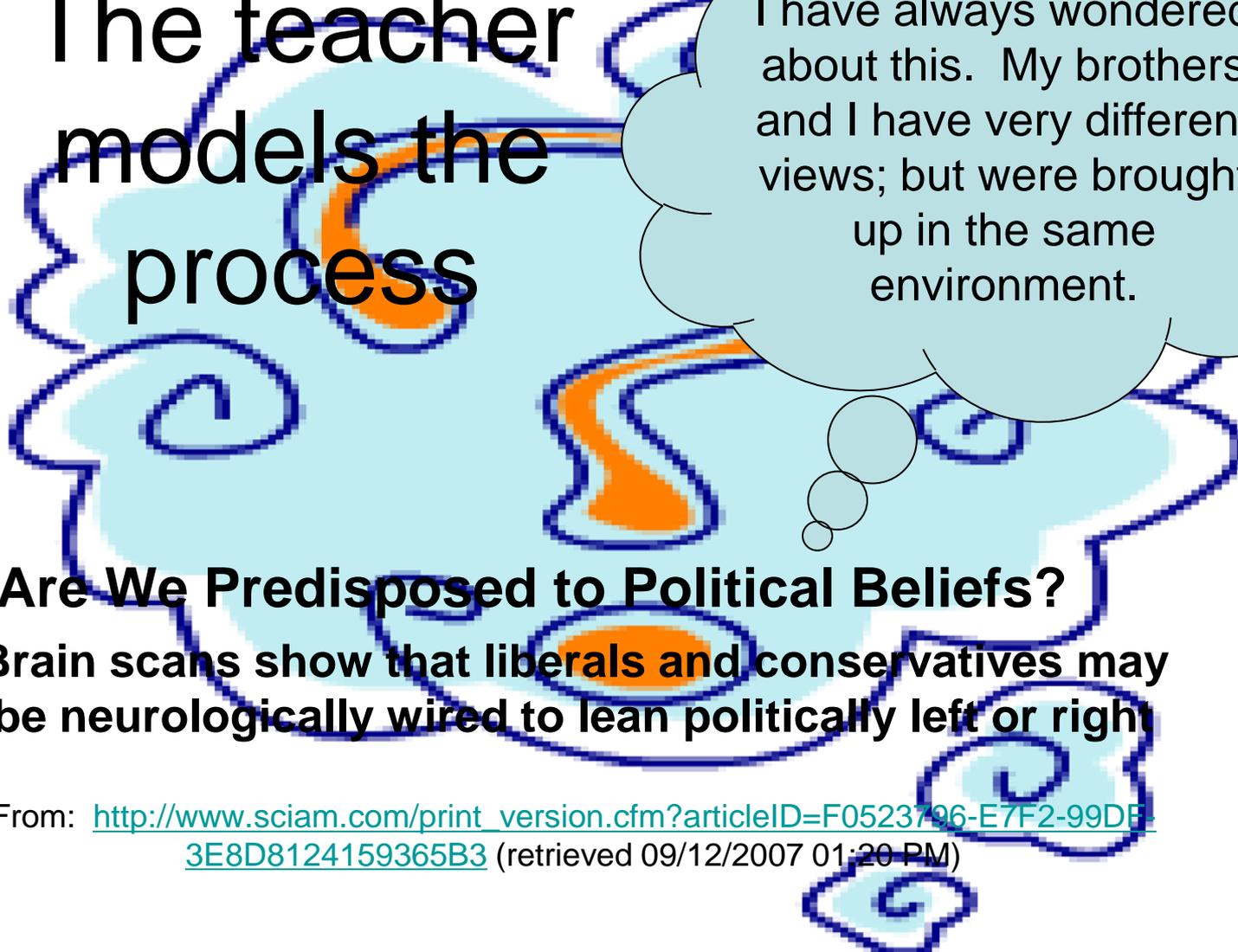
Activity

- Brainstorm sample Right There, Think and Search, and Author and Me questions for the different disciplines.
  - English
  - Science
  - Math
  - History
  - Economics

Modeling Putting Thinking First

The teacher models the process

I have always wondered about this. My brothers and I have very different views; but were brought up in the same environment.

Are We Predisposed to Political Beliefs?

**Brain scans show that liberals and conservatives may be neurologically wired to lean politically left or right**

From: http://www.sciam.com/print_version.cfm?articleID=F0523796-E7F2-99DF-3E8D8124159365B3 (retrieved 09/12/2007 01:20 PM)

It's one of the great paradoxes of television sitcom history: How did Alex P. Keaton—a character in the 1980s sitcom Family Ties portrayed by actor Michael J. Fox—the son of mellow hippie parents, become an uptight Republican who idolizes both Richard Nixon and Ronald Reagan?

"In the past, people thought that…[political leanings were]…all environmentally influenced, a combination of biological dispositions as well as cultural shaping," says David Amodio, an assistant professor of psychology at New York University. However, a new study, led by Amodio, indicates that political bent "is not just a choice people have, but it seems to be linked to fundamental differences in the way people process information."
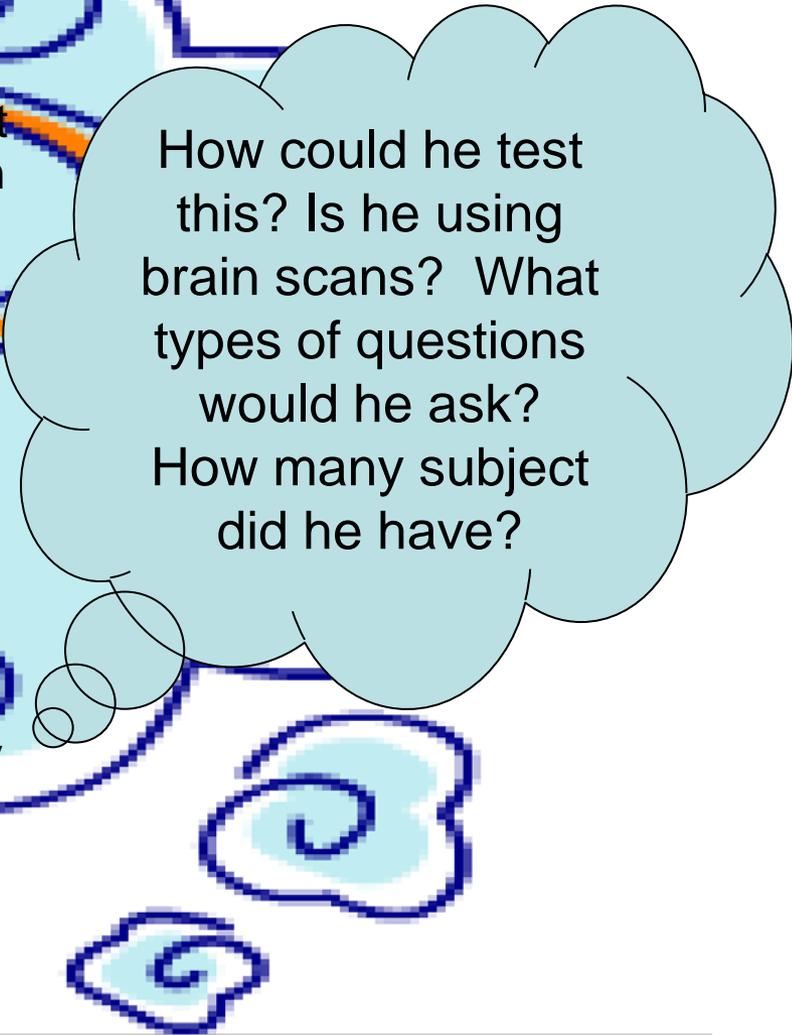
How could he test this? Is he using brain scans? What types of questions would he ask? How many subject did he have?

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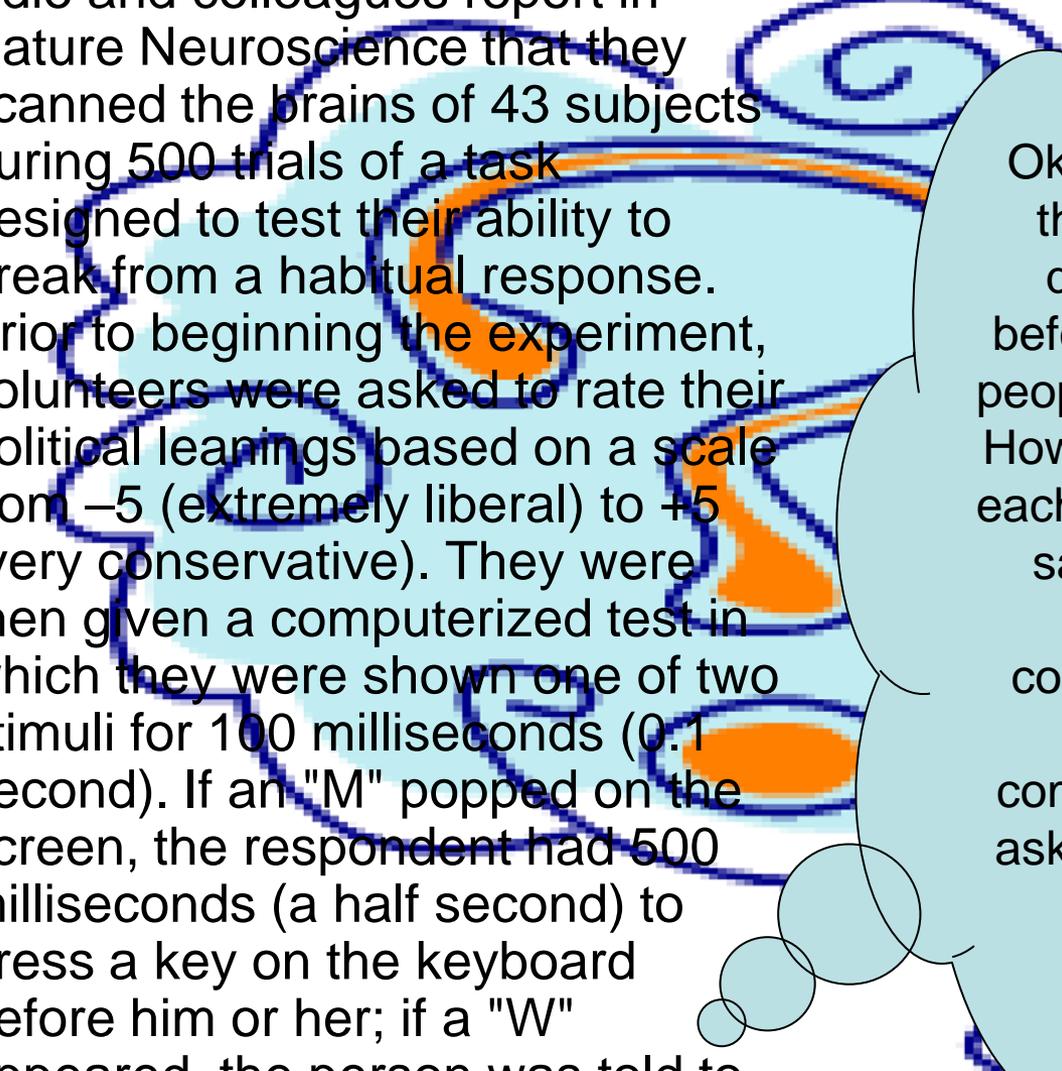
Amodio and colleagues report in Nature Neuroscience that they scanned the brains of 43 subjects during 500 trials of a task designed to test their ability to break from a habitual response. Prior to beginning the experiment, volunteers were asked to rate their political leanings based on a scale from –5 (extremely liberal) to +5 (very conservative). They were then given a computerized test in which they were shown one of two stimuli for 100 milliseconds (0.1 second). If an "M" popped on the screen, the respondent had 500 milliseconds (a half second) to press a key on the keyboard before him or her; if a "W" appeared, the person was told to do nothing.

Okay, I have some of the answers to the questions I asked before. (1) He first had people rate their beliefs. How does he know that each participant had the same definitions of liberal and conservative? (2) He gave them a computerized test that asked them to react to visual stimuli.

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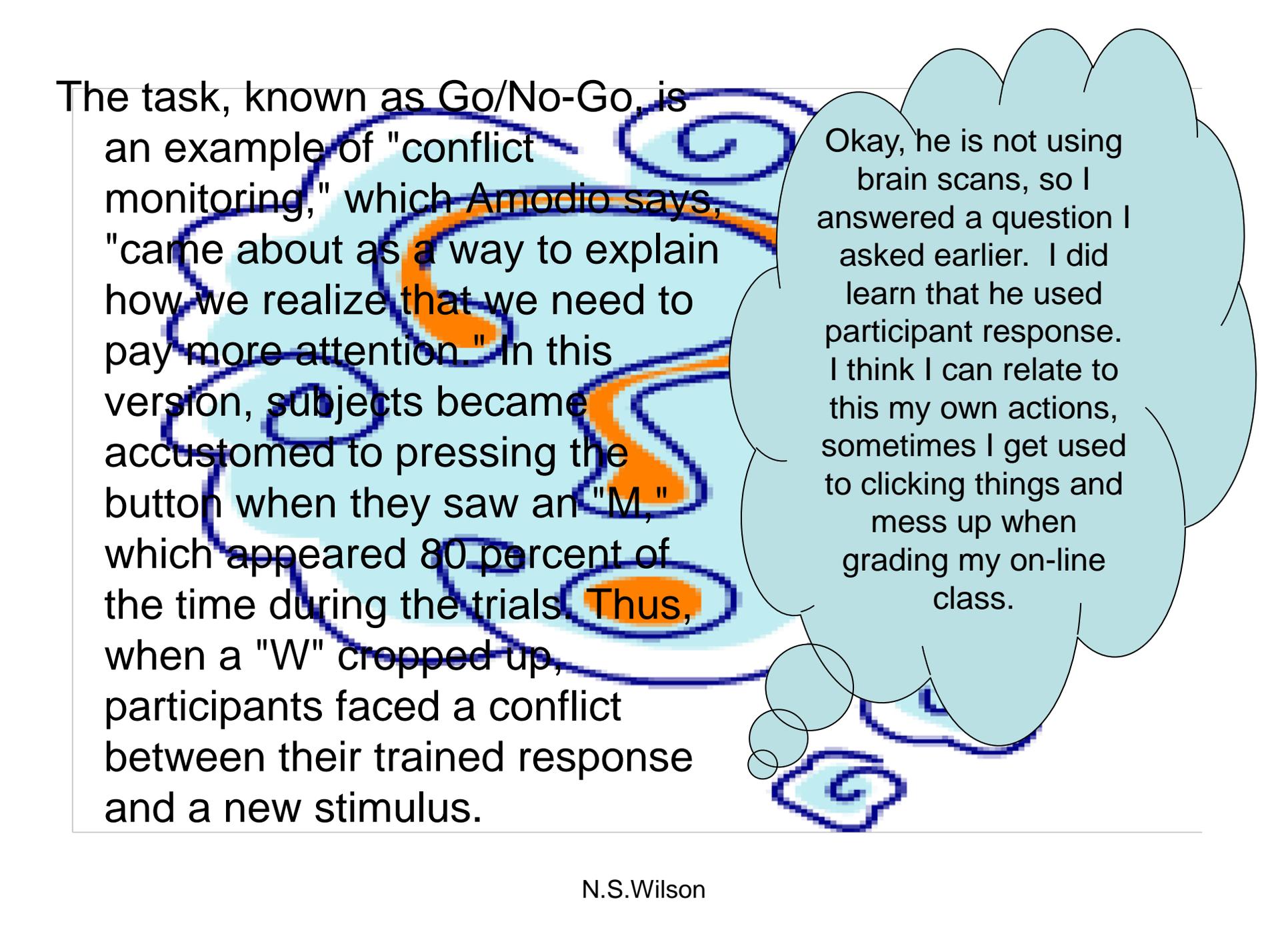
The task, known as Go/No-Go, is an example of "conflict monitoring," which Amodio says, "came about as a way to explain how we realize that we need to pay more attention." In this version, subjects became accustomed to pressing the button when they saw an "M," which appeared 80 percent of the time during the trials. Thus, when a "W" cropped up, participants faced a conflict between their trained response and a new stimulus.

Okay, he is not using brain scans, so I answered a question I asked earlier. I did learn that he used participant response. I think I can relate to this my own actions, sometimes I get used to clicking things and mess up when grading my on-line class.

Amodio says that the anterior cingulate cortex (ACC), a forebrain region, "serves almost as a barometer for this degree of conflict."

"People who have more sensitive activity in that area," he notes, "are more responsive to these cues that say they need to adapt their behavior," reacting more quickly and accurately to the unexpected stimulus. On average, people who described themselves as politically liberal had about 2.5 times the activity in their ACCs and were more sensitive to the "No-Go cue" than their conservative friends.

"They are more sensitive to the need for change and more sensitive to the need to change their behavior," Amodio says about the politically left-leaning subjects.
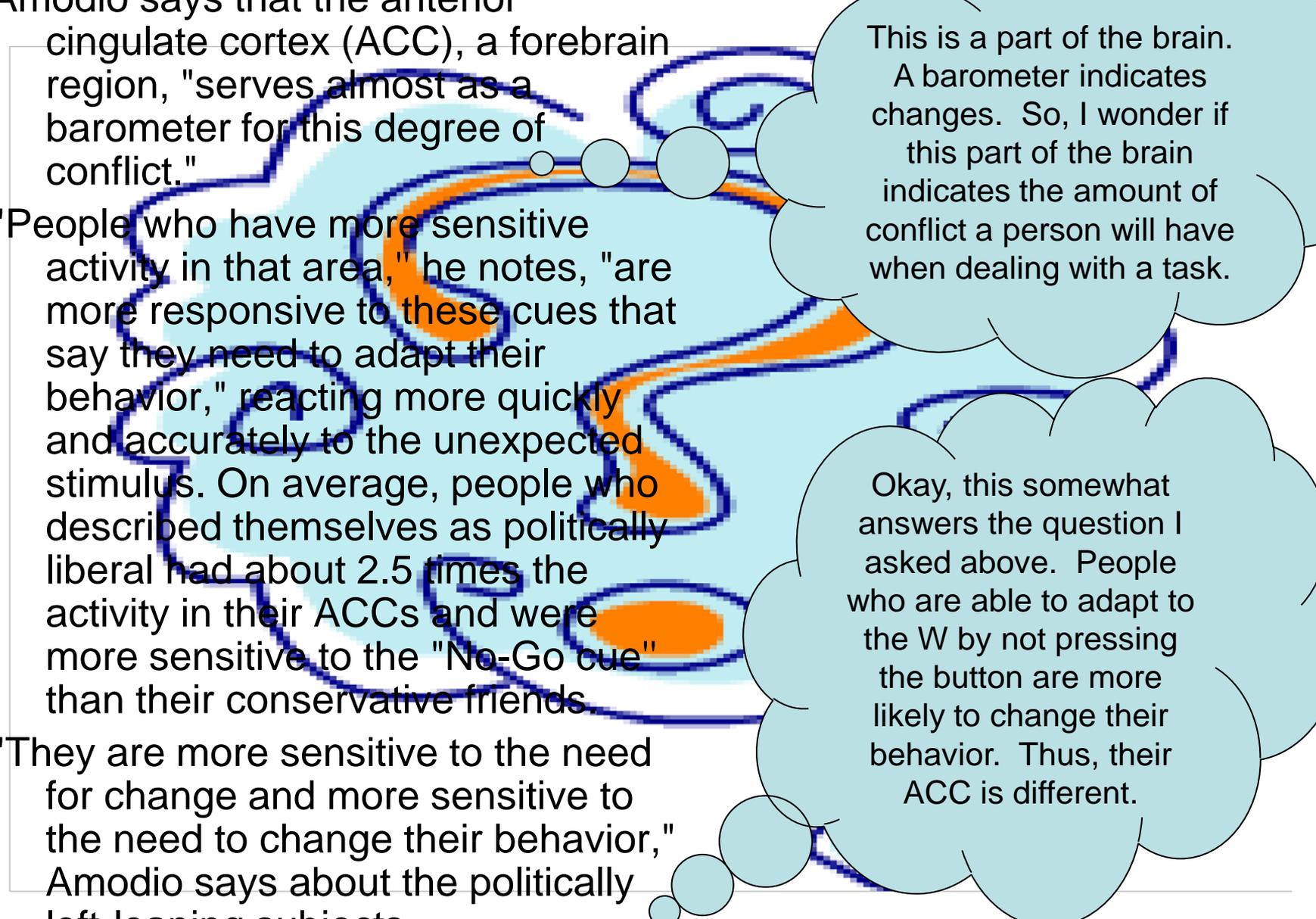
This is a part of the brain. A barometer indicates changes. So, I wonder if this part of the brain indicates the amount of conflict a person will have when dealing with a task.

Okay, this somewhat answers the question I asked above. People who are able to adapt to the W by not pressing the button are more likely to change their behavior. Thus, their ACC is different.

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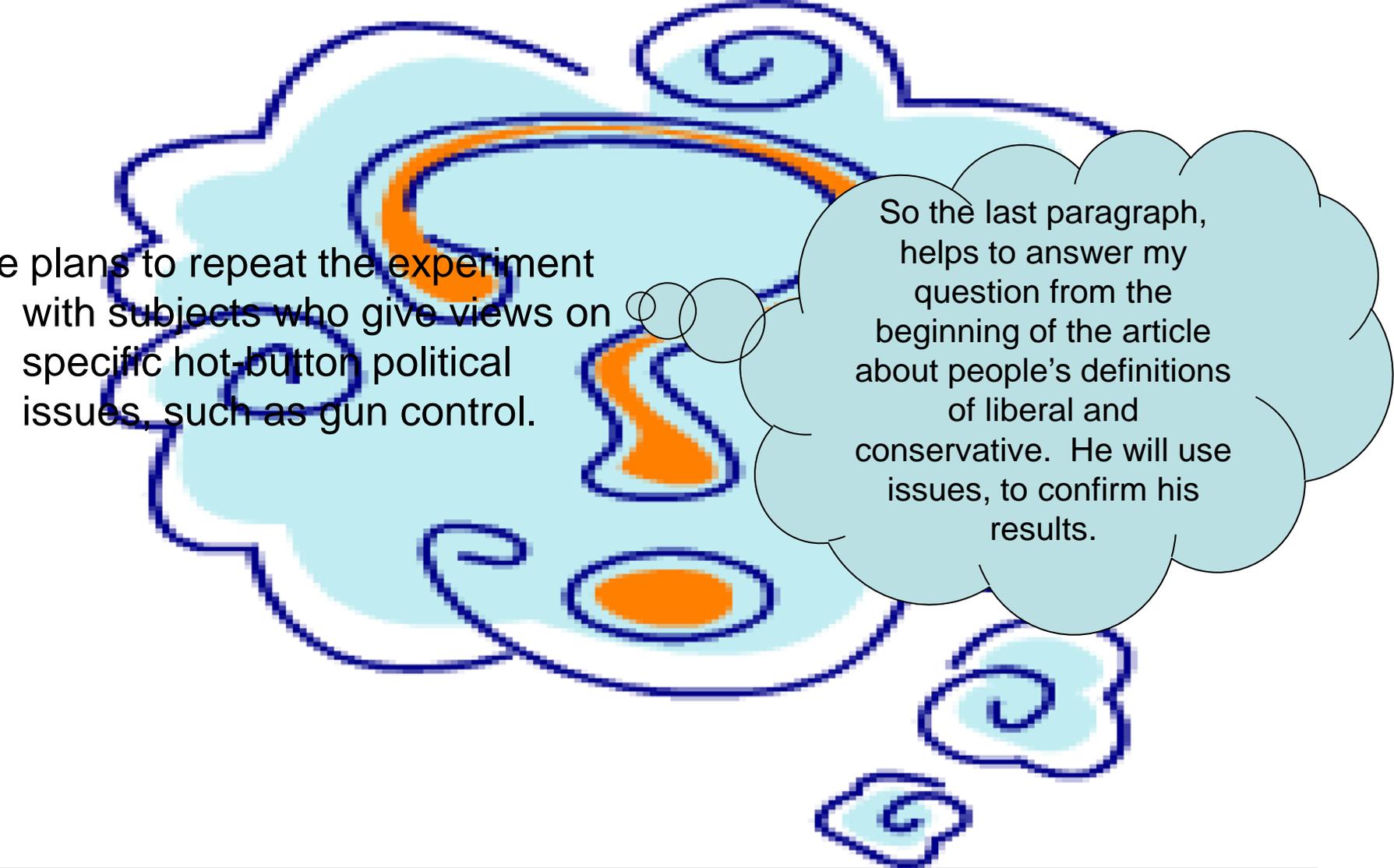
He plans to repeat the experiment with subjects who give views on specific hot-button political issues, such as gun control.

So the last paragraph, helps to answer my question from the beginning of the article about people's definitions of liberal and conservative. He will use issues, to confirm his results.

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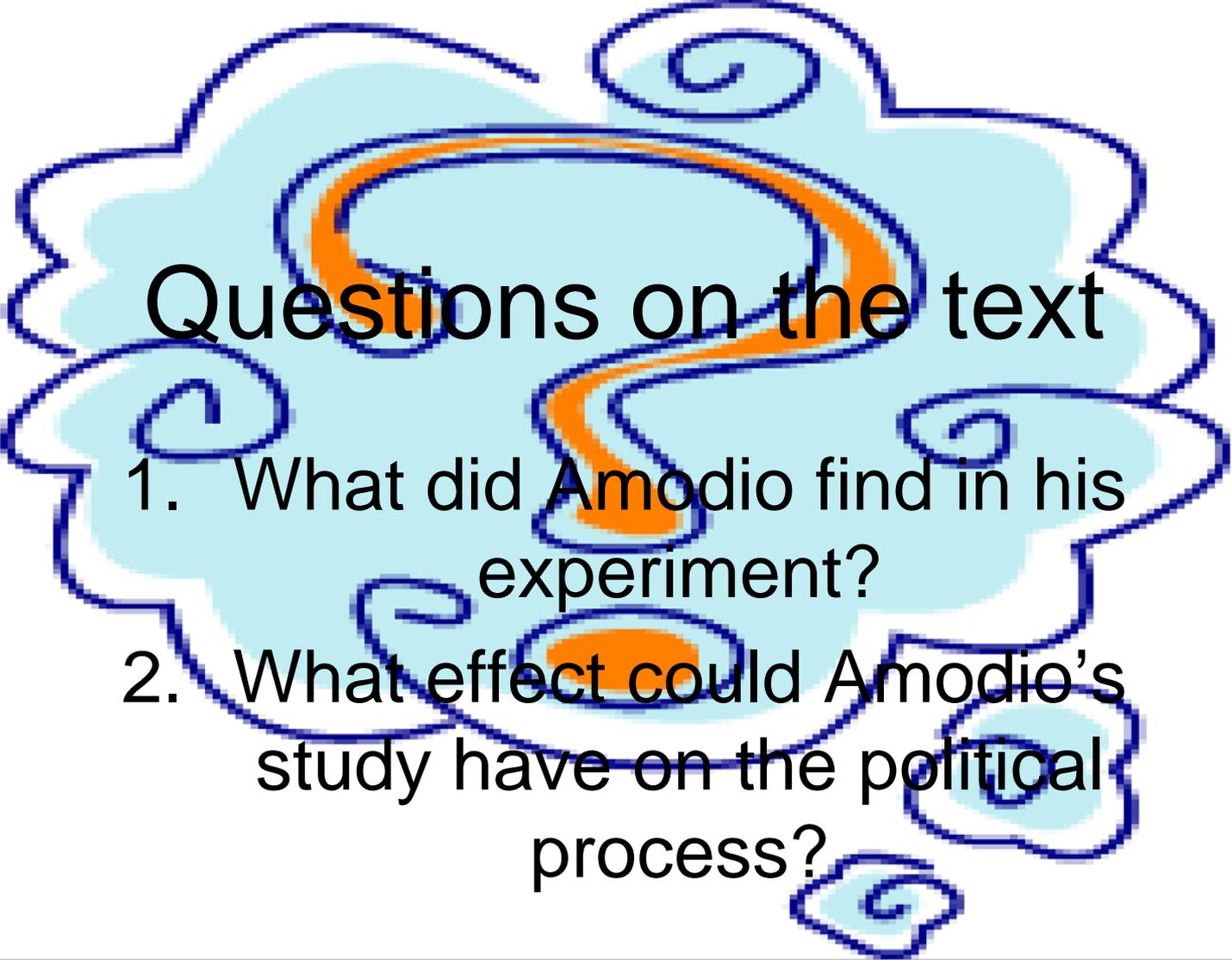
Questions on the text

1. What did Amodio find in his experiment?

2. What effect could Amodio's study have on the political process?
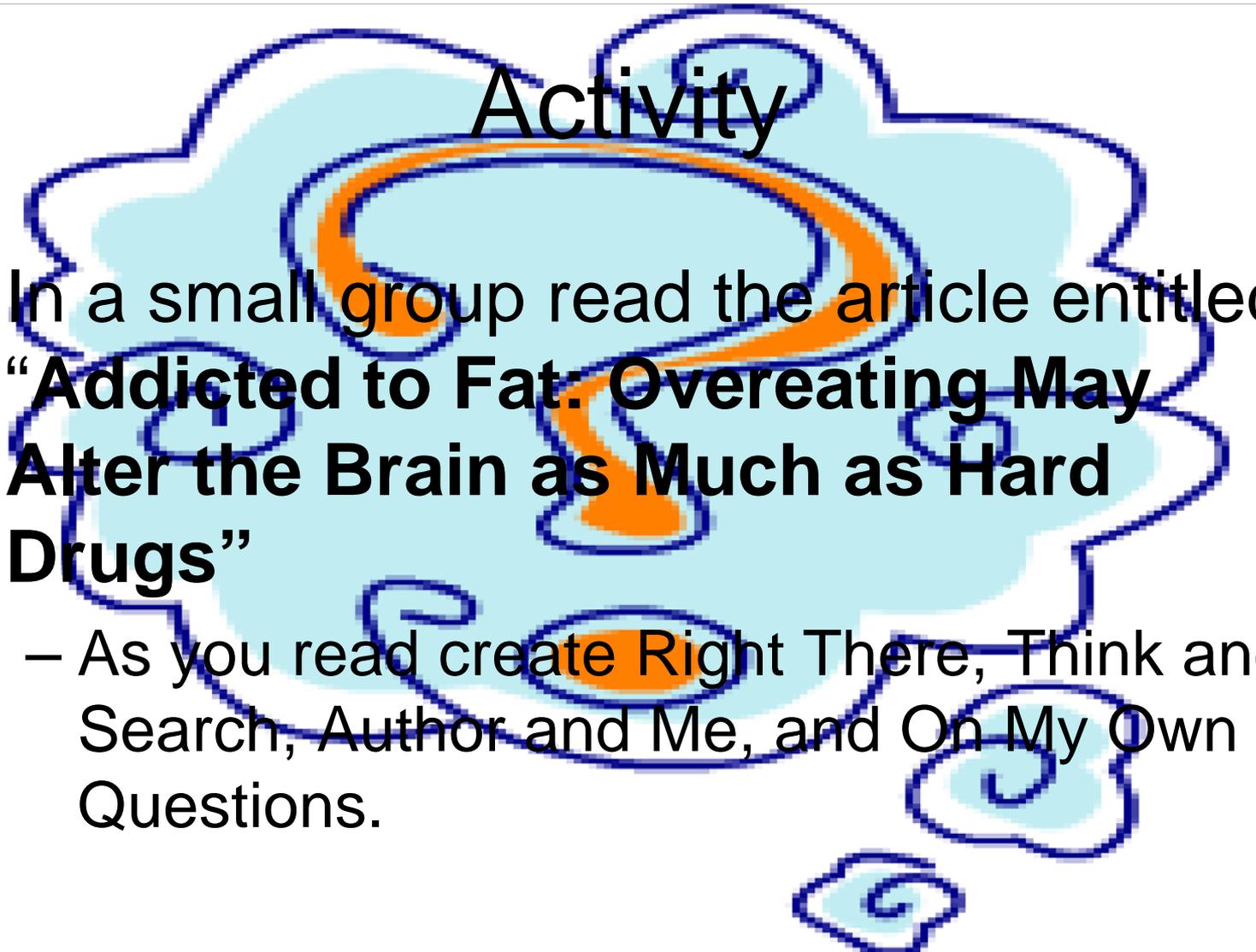
1. What did Amodio find in his experiment?

In order to answer this question, I need to look at the text and summarize the main idea into a brief statement. Let me review. In paragraph 2, Amodio asked participants to describe their political beliefs. In paragraph 3 and 4 they described how he asked them to complete a computer task where they have to deal with the unexpected. In paragraph 5, he found that the way people responded to the stimuli affected how they reacted to the stimuli, more liberal people were less likely to click on the unexpected. Now I can compose my response.

1. Amodio found that people who described themselves as liberal were more likely to react appropriately to unexpected stimuli.

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2. What effect could Amodio's study have on the political process?

2. I think Amodio's study co[uld] help people to determi[ne] politicians really have t[he] political views they say they have. If we give th[em] the test, we can confirm i[f] how they describe themselves matches what they do in the "Go/No Go activity. For example, if they say they are liberal they will be more likely not to go when given the unexpected stimuli.

In order to answer this question, I need to understand the results of the study and use my knowledge about the world and my imagination. As I stated in question 1 the study found that people who described themselves as liberal were more likely to react to unexpected stimuli. In the future world, some crazy scientist or politician may say let's test the ACC of people. If more people react than we can use this information to determine who should run the country. We could also use this information to determine if politicians really have the views they say they have. I like my second idea better.

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Activity

- In a small group read the article entitled "**Addicted to Fat: Overeating May Alter the Brain as Much as Hard Drugs**"
  - As you read create Right There, Think and Search, Author and Me, and On My Own Questions.
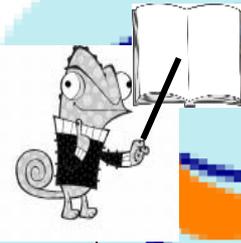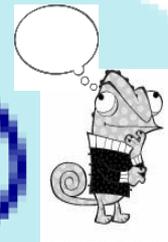
QAR: An Overview

In the Book

In My Head

Right There Think & Search Author & Me On My Own

Moving On:
Expanding Language Used (Content)

In the Book

In My Head

Right There **Think & Search** Author & Me **On My Own**

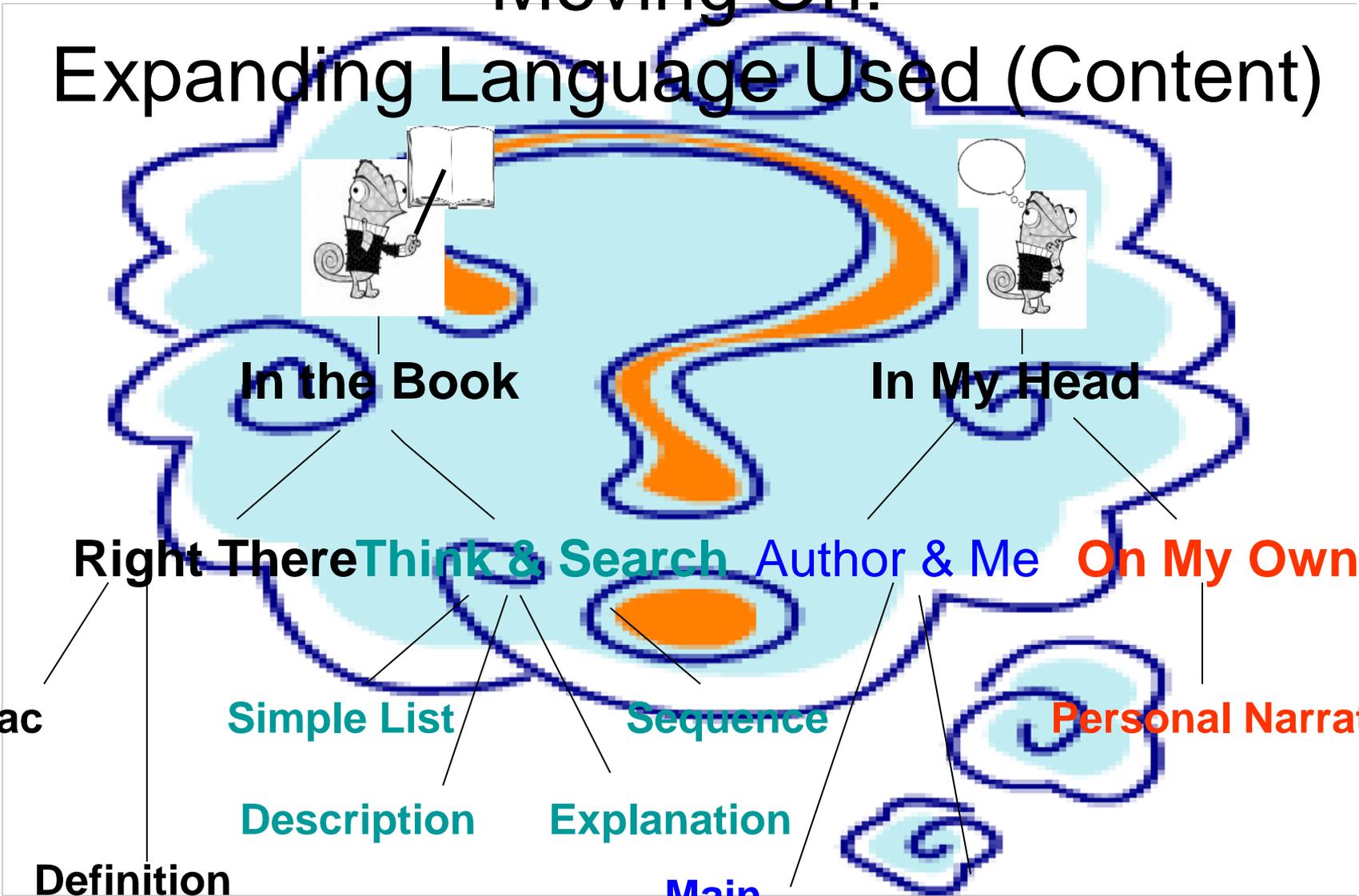**Simple List** **Sequence** **Personal Narrative**

Fact

Description **Explanation**

Definition

Main Idea/Theme **Narrative**

Moving on: Expanding Language Used (Strategies)

In the Book

In My Head

Right There **Think & Search** Author & Me **On My Own**

Scanning

Context Clues

Note-Taking

Summarizing

Clarifying

Using text organization

Main Idea
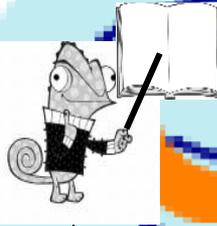
Visualizing

Predicting

Inferencing

Connections

Text-Self Connections

Activating Prior Knowledge

Expanding Further: Elaborating Categories

In the Book

In My Head

Right There   Think & Search   Author & Me   On My Own

Genre Analyses   School Subject Extensions

Text to Self Connections

Text to Theme Connections

Text to World Connections

How to Take Notes

QAR and Bloom's Taxonomy

- Bloom's Taxonomy ranks questions into 6 categories based on the degree of abstraction they contain.
  - Knowledge
  - Comprehension
  - Application
  - Analysis
  - Synthesis
  - Evaluation

QAR and Bloom's Taxonomy

- The **Right There questions** only require the **Knowledge** level of abstraction.

- The **Think and Search questions** add the **Comprehension and Application** levels of abstraction

- The **Author and Me questions** add the **Analysis level** of abstraction.

- The **On My Own questions** can require you to weigh several points of view **(Evaluation)** and support your point of view based on research **(Synthesis).**

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