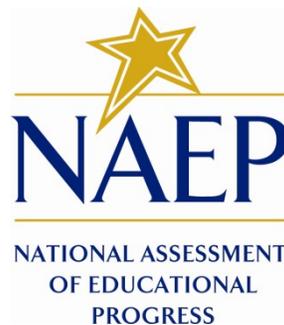


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NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

*Volume II*  
*Cognitive Interviews and Tryouts Protocols*

***National Assessment of Educational Progress (NAEP)  
Grade 8 Social Sciences Interactive Item Components  
(IICs) Pretesting***

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## **PAPERWORK BURDEN STATEMENT**

The Paperwork Reduction Act and the NCES confidentiality statement are indicated below. Appropriate sections of this information are included in the consent forms and letters. The statements will be included in the materials used in the study.

### **Paperwork Burden Statement, OMB Information**

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this voluntary information collection is 1850-0803. The time required to complete this information collection is estimated to be an average of 90 minutes, including the time to review instructions and participate in the information collection. If you have any comments concerning the accuracy of the time estimate, suggestions for improving this collection, or any other concerns, please write to: National Assessment of Educational Progress (NAEP), National Center for Education Statistics, Potomac Center Plaza, 550 12<sup>th</sup> St., SW, 4th floor, Washington, DC 20202.

**This is a project of the National Center for Education Statistics (NCES), part of the Institute of Education Sciences, within the U.S. Department of Education.**

All of the information you provide may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law (20 U.S.C. §9573 and 6 U.S.C. §151).

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# COGNITIVE INTERVIEWS GUIDE AND PROTOCOL

## I. INTRODUCTION TO STUDY SCRIPT

NOTE: The interviewer should not read the script word-for-word, but should be familiar enough with its content to conduct the interview in a natural and conversational manner, paraphrasing, or giving further explanation as appropriate. For example, facilitators should be attentive to the language comprehension of younger students when delivering scripts. Text placed in brackets (</>) is generic text that should be tailored to suit the particular item sets being studied. In general, protocols will be tweaked and customized in light of specific item set content and greater knowledge of delivery devices.

### **Introduction:**

*Hello, my name is \_\_\_\_\_ and I work for EurekaFacts. I am here with my colleagues [introduce colleagues]. It's nice to meet you, and thank you very much for helping us out today.*

Create small talk to build rapport with the student by asking a question, such as:

- *What is your favorite subject in school?*

When the student responds, follow up with two or three questions to get the student used to talking, such as:

- *That's interesting—why do you enjoy <subject> so much?*
- *What are you studying in <subject> at the moment?*
- *And what's the best thing you have studied in <subject> so far?*

*Good. Well, I think you'll enjoy what we are going to be doing today. First, let me begin by explaining why I am here and what you are going to be doing. You are taking part in a special study looking at a new type of activity to find out what students know in the social sciences. It is part of something called the National Assessment of Educational Progress, or NAEP for short, which is conducted by the National Center for Education Statistics, within the U.S. Department of Education. NAEP is a test given to students in grades 4, 8, and 12 in the United States. You will help us develop better tests for other students. Overall, this session should take about <indicate correct length> minutes.*

*It's okay if you don't know how to do any parts of the item set. I will not be grading your work today, and no one will know that it was you who did the item set. My goal is to learn how you react to the item set, so please try to do your best.*

*If at any time you decide you don't want to go on, that is your choice, and you may stop.*

*This new test is on the tablet. The instructions about how to take the test are also on the tablet.*

*This interview is being recorded with audio so we can review it later. We will also be able to capture what you tap on and where you move your fingers. What you say will not be shared outside of the research project team. It may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law. [If needed, reference: (20 U.S.C. §9573 and 6 U.S.C. §151).] We will look at what you say later, but only so that we can understand how our test is working and how we can make it better.*

*We will work together on <number of item sets>.*

*Do you have any questions?*

After answering any questions and giving further explanation, continue with the think-aloud training. If the student is no longer interested in participating, thank the student for his or her time and end the interview.

*Okay, let's move on. Before we look at the real questions, I want to make sure you have a good idea of what we're going to be doing. I am going to give you some practice questions. The practice questions should help you get used to what we will be doing during the real questions. They should help you understand how we want you to respond. Do you have any other questions before we start?*

NOTE: Check the study schedule to establish whether the student should complete the assigned item sets with a

concurrent or retrospective verbal protocol (think-aloud procedure). If the concurrent method is to be used, the student will think aloud while he or she is doing the item sets; in those cases, follow the steps described in Section II. If the retrospective method is to be used, the student will describe his or her thinking after he or she has completed the item sets, while watching a recording of the item sets that was made as they proceeded through it; in those cases, follow the steps described in Section III.

## II. CONCURRENT THINK-ALLOUD

### II a. Concurrent Think-Aloud: Instructions and Modeling Script

NOTE: If the schedule indicates that the **retrospective** method is to be used, please skip this section and move to Section III.

Text written in *italics* is to be spoken aloud by the interviewer. The interviewer should not read the script word-for-word, but should be familiar enough with its content to conduct the interview in a natural and conversational manner, paraphrasing, or giving further explanation as appropriate. For example, facilitators should be attentive to the language comprehension of younger students when delivering scripts. Text placed in brackets is generic text that should be tailored to suit the particular item sets being studied.

*To help us make our test better, we will ask you to complete item sets.*

[If using Morae® or other screen capture software:] *While you are answering the questions, we will be recording everything that happens on the screen. To help us know how well everything is working, the screen recording will capture all of your responses and movements on the tablet such as what you tap on and anything you put into text boxes.*

*I'm going to ask you to do the item sets in a way that may be different from what you are used to. Instead of working quietly, I want you to tell me what you are thinking as you work through the questions. We call this "a think-aloud," because we are asking you to say out loud everything you are thinking.*

*In a moment, I will give you an example of the think-aloud process. Then I will give you a chance to practice it. You won't be graded on anything you say while you are thinking aloud. There are no incorrect thoughts, and everything you think and say is important to us.*

*Okay, now I'm going to show you how to think out loud—this will help you see how I want you to describe what you are thinking as you are working on the item sets. When I am finished I'll ask you to try it, so you can see how it works.*

#### **Think-Aloud Demonstration:**

*Since we can't tell what is going on in your head, we need you to think aloud.*

*Let me give you an example. [Place the example question in front of the student.] Look at this question. It asks me to look at the five animals and choose two that are the most similar. So I am going to do this question, and I will think aloud while I work on it.*

#### **Question:**

**Which two animals below do you think are similar? Circle the two that you think are most similar.**

- A. Beetle
- B. Mouse
- C. Crab
- D. Dolphin
- E. Cow

NOTE: The interviewer should not perform the demonstration by reviewing the item and answering the question 'silently.' Instead, the interviewer will verbally think through their thought process as they read the item and consider the question.

Okay, so I am reading the question... It says I have to decide on the two animals that are the most similar. Hmm, I am just wondering what they mean by "similar." That could mean anything. I'm thinking I'm not sure how I'm going to make that decision. Well, let's look at the choices. So, the choices are beetle, mouse, crab, dolphin, and cow. Well, as I am reading the choices I am already thinking that there are some things about them that are similar, but there are also differences. I'm thinking the beetle and crab are kind of similar, in a way—well, they both have lots of legs and they kind of move around fast. But one lives in the water and the other doesn't, so that makes them different. I guess the mouse also moves around fast, but it's not similar to either the beetle or the crab, except they are all small. Then there is the dolphin that lives in the water, too... but that's about all it has in common with the crab, so I wouldn't say they are very similar even though they're both in the sea. Hmm, so the mouse and the cow are both mammals, they both have fur and they have live babies instead of laying eggs or whatever...oh right, but dolphins are mammals too, aren't they? Yes, I think they are...but really they seem so different from mice and cows to me. I don't know...this seems like a hard question... I'm not sure what to choose. Okay, I'm going to try to make a decision...umm...okay, I think I am going to go for...mouse and cow. Because they both have fur and have four legs and they both walk around on the land. That seems weird; they are not really similar! But when I think about all of the others they seem too different from each other in really basic ways, like where they live and their kind of body and that kind of thing...so, yes, even though it was really hard to decide, that seems like the best choice to me, because they are both mammals and they both live on the land. So those things seem like they are important, and that is how I made my decision.

Can you see that as I was thinking I was saying all of my thoughts out loud? That is what I want you to try to do as you are thinking about the item sets today. The point of the think-aloud is to get at whatever is in your head as you are doing the item sets. Just say aloud the words and the thoughts that are in your head, as you are thinking about and working on the item sets.

## II b. Concurrent Think-Aloud: Student Practice Script I

Interviewers should place the practice question in front of the student so he or she can read it. Some students will be silent after reading the question. Students should be immediately encouraged to say whatever they are thinking.

Now you will try a think-aloud. You can use this example. Like last time, you have to pick two of these things that you think are the most similar. As you are reading the question and the choices, and as you are figuring out your decision, I want you to talk out loud to tell me all of the thoughts that are in your head at each moment.

If I don't hear you speaking, I'll ask you to keep talking. I'm telling you that now so you won't think I am criticizing the way you are working. I'll be reminding you to think aloud if you get quiet because I need to hear all of your thoughts.

Okay, now you try. Go ahead and start working on this question and remember to think aloud as you are doing it.

### **Question:**

**Which two living things below do you think are most similar? Circle the two that you think are most similar.**

- A. Apple tree
- B. Grass
- C. Wheat
- D. Pear tree
- E. Cherry tree

After the student has finished:

Now that you have practiced, how do you feel about thinking aloud while you are doing the item sets? What questions would you like to ask me? [If the student says he or she feels okay and doesn't have any questions, say: *Good, then let's begin our study.*] [If the student expresses concerns, says he or she has questions, or appears to be hesitant or reluctant, ask him or her to say more about the concerns or questions, and try to address the concerns or uncertainties in a supportive way.] [If the student indicates that he or she does not wish to continue or does not feel comfortable continuing, allow him or her to stop and say:] *Alright, let's stop. Thank you for working with me today. Let me walk you out.* [Escort the student out of the session.]

It may be necessary to remind the student to talk aloud as he or she works through the questions and tasks. If necessary,

interviewers should use “think-aloud hints” to prompt the student, being careful not to lead the student. The interviewer needs to be familiar enough with the information to introduce the think-aloud in a natural, conversational manner.

### II c. Concurrent Think-Aloud: Student Practice Script II (Optional)

NOTE: Use this script only if you feel the student would benefit from another think-aloud practice before moving on to the actual questions. It may also be beneficial to model thinking aloud again for the student rather than doing another think-aloud practice [see Think-Aloud Demonstration in Section II a].

If the student struggles to think aloud, the interviewer should give the student another opportunity to practice. The interviewer should praise the student for the first attempt regardless of how good it was, for example:

*“Very good—let’s do another one before we start the real item sets. Are you ready? Here is the next practice question. Remember to think out loud as you begin to think about this question and all the way through—tell me what you are thinking as you work through it.”*

NOTE: During the practice item, the interviewer should prompt the student to think out loud at any point when there are more than a few seconds of silence (see suggested prompts in section II e).

#### **Question:**

**Which two of the following objects have the most similar properties? Circle the two that are most similar.**

- A. Silver coin**
- B. Chocolate coin**
- C. Gold coin**
- D. Blue plastic coin**
- E. Brown plastic coin**

After the student has finished:

*Now that you have practiced, how do you feel about thinking aloud while you are doing the item sets? What questions would you like to ask me? [If the student says he or she feels okay and doesn’t have any questions, say: Good, then let’s begin our study.] [If the student expresses concerns, says he or she has questions, or appears to be hesitant or reluctant, ask him or her to say more about the concerns or questions, and try to address his or her concerns or uncertainties in a supportive way.] [If the student indicates that he or she does not wish to continue or does not feel comfortable continuing, allow the student to stop, and say:] Alright, let’s stop. Thank you for working with me today. Let me walk you out. [Escort the student out of the session.]*

### II d. Concurrent Think-Aloud: Starting the Set of Items/Tasks

*Now we will move on to the actual item sets. Remember, as you do all the activities and answer all the questions, I’d like you to say aloud everything that you’re thinking, and I may remind you to do that if you are quiet. These item sets should take about <indicate correct length> minutes. Remember, you will not be graded on what you do during the item sets and there is no right or wrong way to think aloud, as long as you keep telling me your thoughts. Your thoughts will help us make the item sets better. I will also have a few questions after you have finished working.*

*Do you have any questions before we go on? [Answer any questions the student may ask.]*

*Because the information you provide is so important to us, I am going to be taking notes while you think aloud and answer the questions.*

*Here is the item set. When you are ready, go ahead and start working.*

## II e. Concurrent Think-Aloud: Hints for the Interviewer

The goal of think-alouds is to capture all the student's mental processes while working through the item sets. Interviewers must strive to have the student speak aloud all of his or her thoughts while doing the item sets. If a student is continually providing short utterances or not talking, interviewers should use "continuers" to encourage students to be more descriptive, trying to get students to verbalize thoughts without putting words in students' mouths. Care should be taken not to ask questions that lead students' responses in particular directions, or make them rush or change their approach. Interviewers should be as objective and unbiased as possible.

In general, if the student is silent for approximately 5 to 10 seconds, interviewers should use the following script as a guide for encouraging the student to describe his or her thoughts, or to help the student elaborate on his or her responses.

If the student is not verbalizing enough, interviewers should offer a verbal nudge to remind the students to keep talking, such as:

- *What's going on in your head right now?*
- *I see you're looking at the <item or screen/figure/chart/text>. What are you thinking?*
- *You seem to be thinking hard—can you tell me what's in your mind right now?*
- *What are you thinking now?*
- *Any other thoughts?*

If the student says something about his or her thoughts but it is difficult to tell exactly what he or she means, or if the student begins to talk but does not say very much, interviewers can urge the student to elaborate. For example:

- *Tell me a bit more about that.*
- *That's interesting—can you say more about that?*
- *Go on...*
- *Okay, and what else are/were you thinking?*

If more clarity or a more explicit description of a student's thoughts is desirable, encourage further explanation, such as:

- *Can you explain what you mean by that?*
- *Can you say a bit more to help me understand what you mean/are thinking/were thinking?*

It is important to be responsive and sensitive to each student's behavior. If it becomes clear that students cannot say any more about their thoughts, interviewers should not keep asking. Students should be encouraged to think aloud as much as they can, but their reactions should be closely observed and pushing them to answer should be avoided if students seem frustrated or uncomfortable. While it is desirable that students articulate as much as they can, sometimes students will simply be unable to state what is in their mind beyond a basic reply such as, "I am reading the question." Interviewers must be sensitive to nonverbal signals that may indicate that students cannot say any more than they have or that they need a few extra seconds to gather their thoughts to put them into words.

In addition, if it seems a student is hung up on something during observations, interviewers should note when this occurred.

## II f. Notes on Student Actions and Behaviors During Item Set

As a student is proceeding through an item set, a screen-capture system will record evidence of his or her actions on the item set (such as where a student taps the screen, how he or she moves through the content and the questions, and any text or numbers entered into fields or boxes). During the session, the interviewer should take notes regarding any of the student's expressions or behaviors that may reflect the status of the student's understanding, engagement, or use of the item set. The following are examples of such behaviors for interviewers to note:

- Does the student express signs of confusion, boredom, or excitement?
- Does the student use the tools provided in the item set, such as tapping on tabs or buttons to reveal additional or earlier information or digital notepads?
- Does the student rapidly move through the screen or take his or her time?
- Does the student spend a lot of time on a particular section?
- Does the student seem discouraged?

These kinds of observations should be considered opportunities to prompt students to think aloud and to encourage them to express what is on their minds. Interviewers should also make a note of any places in the item set that appear valuable for follow-up with some additional questions after the item sets are completed (see Section IV).

### III. RETROSPECTIVE THINK-ALLOUD

#### III a. Retrospective Think-Aloud: Instructions and Modeling Script

Using the retrospective (versus concurrent) think-aloud approach, students are instructed to complete the item sets as they would under normal testing conditions (silently, without interruption). After the item sets are completed, they will be asked to describe what they were thinking while reviewing the item sets on the computer. A replay of the item sets (e.g., using Morae<sup>®</sup> software<sup>1</sup>) will help cue the student's recollection of his or her thought processes that occurred during the item sets as the student progressed through them.

Text written in *italics* is to be spoken aloud by the interviewer. The interviewer should not read the script word-for-word, but should be familiar enough with its content to conduct the interview in a natural and conversational manner, paraphrasing, or giving further explanation as appropriate. For example, interviewers should be attentive to the language comprehension of younger students when delivering scripts. Text placed in brackets is generic text that should be tailored to suit the particular item set being studied.

*To help us make our test better, we will ask you to complete an item set.*

[If using Morae<sup>®</sup> or other screen capture software:] *While you are answering the questions, we will be recording everything that happens on the screen. To help us know how well everything is working, the screen recording will capture all of your responses and movements on the tablet such as what you tap on and anything you put into text boxes.*

*First, you'll do the item set, working at your own pace through all of the activities and questions you will see on the screen. Then, after you have finished, I'm going to ask you to go back over the item sets with me. As we go back over them and look at the item sets again, I will ask you to tell me what you were thinking as you were working through each of the sections. We call this thinking aloud, because we are asking you to say out loud everything you were thinking. To help you remember what you were thinking as you worked on it the first time, we will look at the recording we just made of you doing the item set. This way, you will be able to see all of your screen actions and all of the answers that you gave. We will watch the recording, and as we are going through it, I will be asking you to tell me what you were thinking at different points. Does that make sense? Do you have any questions?*

[Answer any questions and clarify the sequence of steps, if needed.]

*In a moment, I will give you an example of the think-aloud process. Then I will give you a chance to practice it. You won't be graded on anything you say while you are thinking aloud. There are no incorrect thoughts, and everything you think and say is important to us.*

*Okay, now I'm going to show you how to think out loud—this will help you see how I want you to describe what you were thinking while you were working on the item sets. When I am finished, I'll ask you to try it, so you can see how it works.*

#### **Think-Aloud Demonstration:**

*Since we can't tell what is going on in your head, we need you to think aloud.*

*Let me give you an example. [Place example question in front of student.] Look at this question. It asks me to choose which two animals are the most similar. I'm going to do this question just as I would for a test. After I have finished, I will try to remember what I was thinking as I was working on the question so I can tell you.*

<sup>1</sup> Morae<sup>®</sup> software (by TechSmith) can capture a student's interactive behaviors as they happen, while one or more observers can simultaneously record comments that are time-locked to the student actions and to the video recording. Adding Morae<sup>®</sup> Observer software allows observers to be located in a remote location. This is both a convenience for observers and a potential means of reducing student stress or distraction.

**Question:**

**Which two animals below do you think are similar? Circle the two that you think are most similar.**

- A. Beetle**
- B. Mouse**
- C. Crab**
- D. Dolphin**
- E. Cow**

The interviewer ‘works’ silently for about a minute on the question. The interviewer should enact some behaviors that suggest that he or she is thinking hard about the question and carefully considering the possible answers; for example, pointing with a pencil tip at each option in turn; moving a pencil or fingertip between answer options; returning to the question; giving nonverbal signals indicating consideration, uncertainty, etc. Finally, the interviewer will circle two answers, B and E, and then begin the retrospective think-aloud.

*Okay, so here I was reading the question... It says I have to decide on the two animals that are the most similar. So, at first I was wondering what do they mean by “similar.” That could mean anything. And I was thinking I wasn't sure how I'm going to make that decision. So...the choices...beetle, mouse, crab, dolphin, and cow. Yeah, well, as I'm reading the choices I'm already thinking there are some things about them that are similar, but there are also differences. I was thinking the beetle and crab are kind of similar, in a way—well, they both have lots of legs and they kind of move around fast. But one lives in the water and the other doesn't, so that makes them different. And the mouse also moves around fast, but it's not similar to either the beetle or the crab, except they are all small. Oh yeah, and then there is the dolphin that lives in the water, too...and I wondered about that, but that's about all it has in common with the crab, so I couldn't say they're very similar even though they're both in the sea. So, in the end I thought the mouse and the cow are both mammals, they both have fur, and they have live babies instead of laying eggs or whatever...but then I thought, dolphins are mammals too, right? I think they are...anyway they seem so different from mice and cows to me. So I wasn't sure...it seemed like a hard question...I wasn't sure what to choose, but in the end I had to make a decision, so I decided to go for mouse and cow. Because they both have fur and four legs and walk around on land. It's weird because they're really not that similar. But, when I think of all the others, they seem really different from each other like in where they live and their bodies. So even though it was really hard to decide, that seemed like the best choice to me, because they both live on land and they're both mammals. So those things seemed pretty important and that's how I made my decision.*

*Can you see that as I was thinking I was saying all of my thoughts out loud? That is what I want you to try to do as you are thinking about your social science item sets today. The point of the think-aloud is to get at whatever was in your head as you were doing the item sets. Just say aloud the words and the thoughts that were in your head, as you were thinking and working.*

*Okay, let's have you give it a try.*

**III b. Retrospective Think-Aloud: Student Practice Script I**

Interviewers should place the practice question in front of the student so he or she can read it. Allow the student as much time as needed to answer the question. When the student indicates that he or she has finished, ask the student to begin thinking aloud. Some students will be silent after reading the question. Such students should be asked to say whatever they are thinking. It may be necessary to remind students to talk aloud as they work through the questions and tasks. If necessary, interviewers should use the “Think-Aloud Hints” shown in section III e) to prompt students, being careful not to lead students. The interviewer needs to be familiar enough with the information to encourage the think-aloud in a natural, conversational manner.

*Now you will try a think-aloud. I will give you a question like the one I just did. You will read and answer the question and then let me know when you're done.*

*Once you are done answering, I will ask you to look back at the question and the answer you chose and try to say out loud the thoughts that were in your head at each moment. If I don't hear you speaking, I'll ask you to keep talking. I'm*

telling you that so you won't think I am criticizing the way you are thinking. I'll be reminding you to think aloud if you get quiet because I need to hear all of the thoughts you had.

Okay, now go ahead and start working on the question. Let me know when you are finished.

**Question:**

**Which two organisms below do you think are most similar? Circle the two that you think are most similar.**

- A. Apple tree
- B. Grass
- C. Wheat
- D. Pear tree
- E. Cherry tree

When students indicate they are finished, make sure they have circled two answers, and then ask them to begin describing their thoughts out loud. As necessary, include the appropriate prompting questions, such as the following:

*Okay, so tell me what you were thinking as you were reading and answering this question. What did you think at the beginning, when you started to read the question?... And then what were you thinking?... And what else did you think about?... Anything else?... Can you tell me more about that?...etc.*

**III c. Retrospective Think-Aloud: Student Practice Script II (Optional)**

NOTE: Use this script only if you feel the student would benefit from another think-aloud practice before moving on to the actual item sets. It may also be beneficial to model thinking aloud again for the student rather than doing another think-aloud practice [see think-aloud demonstration in III a].

If the student struggles to think aloud, the interviewer should give the student another opportunity to practice. The interviewer should praise the student for the first attempt regardless of how good it was, for example:

*“Very good—let’s do another one before we start the real item sets. Are you ready? Here is the next practice question. [Place example question in front of student.] Remember that after you have finished answering this question I will ask you to talk out loud to tell me what you were thinking all the way through—so you should tell me what you were thinking as you worked through it. So, first of all, go ahead and do the question, and let me know when you have finished.”*

As before, during the post item sets think-aloud phase, the interviewer should prompt the student to think out loud at any point when there are more than a few seconds of silence (see suggested prompts, Section II e).

**Question:**

**Which two of the following objects have the most similar properties? Circle the two that are most similar.**

- A. Silver coin
- B. Chocolate coin
- C. Gold coin
- D. Blue plastic coin
- E. Brown plastic coin

After the think-aloud phase is finished, ask:

*Now that you have practiced, do you feel that you understand how you should talk aloud about what you were thinking while you were doing the item sets? Is this something you feel okay about doing? [If students say yes:] Good, then let’s begin our study. [If students say no or appear to be hesitant or reluctant, ask them to say more about any reservations they have, and try to address their concerns or uncertainties in a supportive way.] [If students indicate they do not wish to continue or do not feel comfortable continuing, allow them to stop, and say:] Alright, let’s stop. Thank you for working with me today. Let me walk you out. [Escort the student out of the session.]*

**III d. Retrospective Think-Aloud: Starting the Item Set/Tasks**

Now we will move on to the actual item sets. Remember, after you have finished doing all the activities and answering all the questions, I will ask you to say aloud everything that you remember thinking while you were doing the item sets, and I may remind you to do that if you are quiet. These item sets should take about <indicate correct time> minutes. Remember, you will not be graded on your responses. There is no right or wrong way to think aloud, as long as you keep telling me your thoughts. Your thoughts will help us make the item sets better. I will also have a few questions after we have finished.

Do you have any questions before we go on? [Answer any questions the student may ask.]

Because the information you provide is so important to us, I am going to be taking notes while you are working and while you are thinking aloud afterwards.

Here is the first item set. When you are ready, go ahead and start working.

### **III e. Retrospective Think-Aloud: Prompts and Questions After Completion of Item Set/Tasks**

Now I would like you to tell me what you were thinking as we review what you did for the item sets. We will be recording what you are saying as you think aloud. Feel free to stop at any time. What you say will not be used to grade you. The information will only be used to help improve the item sets. I will play the item sets and your responses back from the beginning now, and I want you to talk about the thoughts you had as you were working. From time to time, I might pause the video, to give you enough time to explain what you were thinking at that point or if I need to ask you any extra questions. I will let you know when I am pausing the playback.

The interviewer plays and watches the recording of the item sets in real time with the student, and asks the student to describe aloud what he or she was thinking at various points in the items/task. The interviewer should pause the recording whenever more time is needed, making sure to say, “I’ll just pause this for a moment” or “I am pausing the recording here,” so that the student understands that the playback has been paused.

If the student is not verbalizing enough, interviewers should offer a verbal nudge to remind the student to keep talking, such as:

- *What was going on in your head at this time?*
- *I see you were looking at the <item or screen/passage/chart/image>. What were you thinking?*
- *You seemed to be thinking hard—can you tell me what was in your mind right then?*

If the student says something about his or her thoughts but it is difficult to tell exactly what the student means, or if the student begins to talk but does not say very much, interviewers can urge the student to elaborate. For example:

- *Tell me a bit more about that.*
- *That’s interesting—can you say more about that?*
- *Go on...*
- *Uh huh, okay, and what else were you thinking?*

If more clarity or a more explicit description of a student’s thoughts is desirable, encourage further explanation, such as:

- *Can you explain what you mean by that?*
- *Can you say a bit more to help me understand what you were thinking?*

### **III f. Notes on Student Actions and Behaviors During Item Set/Tasks**

As a student is proceeding through the item sets, a screen-capture system will record evidence of his or her actions on the item sets (such as where a student taps, how he or she moves through the item sets, and whether the student has entered any text into response fields). During the session, the interviewer should take note of any of the student’s expressions or behaviors that may reflect the status of his or her understanding, engagement, or reaction to the item sets. The following are examples of such behaviors for interviewers to note:

- Does the student express signs of confusion, boredom, or excitement?
- Does the student use the tools provided in the item set, such as tapping on tabs or buttons to reveal additional or

- earlier information or digital notepads?
- Does the student rapidly move through the screen or take his or her time?
- Does the student spend a lot of time on a particular section?
- Does the student seem discouraged?

These kinds of observations should be considered opportunities to prompt students once they are done working to recall what they were thinking. Interviewers should make notes of any places during the course of the assessment that appear valuable for follow-up questions after the item sets are completed (see Section IV).

#### IV. POST-THINK-ALLOUD FOLLOW-UP QUESTIONS

After completing the think-aloud process for an item set, interviewers will follow up with a brief period of focused retrospective questioning. The post-think-aloud item set questions will include the following:

- One standardized post-item set question that all students will be asked following all item sets, which is designed to discover whether the student has prior knowledge of the content.
- Up to three additional targeted questions that are item set specific. These will be selected for each item set by ETS staff prior to testing. Interviewers will receive the set of up to three questions for the specific item set they are examining in each cognitive interview.
- A set of six standardized post-item set social science multiple-choice questions that all students will be asked following all item sets.
- Four survey questions that will provide information on prior experience with digital resource use and/or current and prior experiences with assessments.

##### Standardized Question for All Tasks: Task-Specific Prior Knowledge

*Have you studied anything related to this <item set/task> in school, or have you learned about or come across these things in your own life? [If yes:] Tell me about what you have learned or studied or experienced that is related to this <item set/task>.*

##### Additional Questions: Task-Specific Issues

The purpose of the additional post-item set questions is to capture more information on issues such as student actions during each item set, particular aspects of social studies targeted in the item set, and general reflections about the items. ETS staff will identify up to three questions for interviewers to ask in relation to each item set. Interviewers will also be trained to generate post-item set questions on the fly, for cases where they observe something that they determine would need follow-up probing. The following are some examples of questions that might be asked at this stage:

- *Did any words in the questions confuse you?*
- *What ways could we change the <item set/task> to make it better?*
- *Did the <tools, images, videos, audios, etc.> for the item help you answer the questions asked?*

##### Additional Questions: Standardized Post Task Social Science Questions

We wish to also gauge the student's approximate social science knowledge with a few targeted social science questions. Students will answer six additional general social science questions following the item sets, which are designed to discover the student's approximate ability in the social sciences. The set consists of approximately six brief multiple-choice social science-specific questions and takes approximately five to eight minutes for students to complete the set. These questions will be drawn from materials already used extensively at each grade level in prior NAEP assessments. Examples from NAEP-released items for grade 8 are:

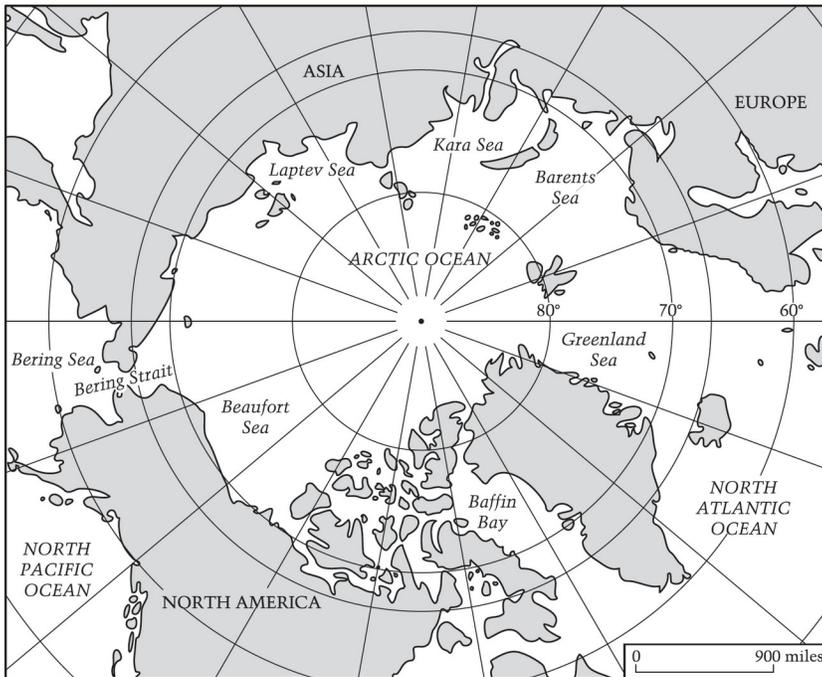
**The President of the United States is elected to a term of:**

- A. 2 years.
- B. 4 years.
- C. 6 years.
- D. 8 years.

**United States Senators are a part of which branch of the government?**

- A. Legislative

- B. Executive**
- C. Treasury Department**
- D. Supreme Court**



Latitude on this map is represented by:

- A. circles.**
- B. shaded areas.**
- C. straight lines.**
- D. convergent lines.**

In the mid-nineteenth century, before railroads were constructed, people in the United States transported commercial materials, such as timber and coal, over long distances primarily by means of:

- A. rivers and canals.**
- B. turnpikes and freeways.**
- C. pack horses and mule trains.**
- D. ox carts and Conestoga wagons.**

We hold these truths to be self-evident: That all men are created equal; that they are endowed by their Creator with certain unalienable rights; that among these are life, liberty, and the pursuit of happiness. That, to secure these rights, governments are instituted among men, deriving their just powers from the consent of the governed; that, whenever any form of government becomes destructive of these ends, it is the right of the people to alter or to abolish it, and to institute a new government.—1776

The quotation is from the:

- A. Articles of Confederation.**
- B. Constitution.**
- C. Declaration of Independence.**
- D. Missouri Compromise.**

The primary author of the document was:

- A. George Washington.**
- B. John Marshall.**
- C. Robert E. Lee.**
- D. Thomas Jefferson.**

### **Additional Questions: Survey Questions**

Four survey questions will provide information on prior experience with digital resource use and/or current and prior experiences with assessments.

**Do you think you would be able to use a touchscreen on a computer, tablet, or smartphone?**

- A. I definitely can't.**
- B. I probably can't.**
- C. I probably can.**
- D. I definitely can.**

**On a weekday, about how many hours do you use a tablet, laptop or desktop computer for doing schoolwork, including homework?**

- A. None**
- B. Less than an hour**
- C. 1 to 2 hours**
- D. 2 to 3 hours**
- E. 3 to 4 hours**
- F. More than 4 hours**

**Have you ever worked on social studies or history assignments on a tablet or computer before?**

- A. Yes**
- B. No**
- C. Don't Recall**

**Overall, completing the social science questions on the tablet was:**

- A. very easy.**
- B. easy.**
- C. difficult.**
- D. very difficult.**

### **V. DEBRIEFING AND THANK YOU FOR COGNITIVE INTERVIEW**

*Before we finish, I'd like to hear any other thoughts you have about what you've been doing.*

*Is there anything else you would like to tell me about working on the task?*

*Is there anything you would like to ask me about what we did today? [Answer student questions.]*

*Thank you for helping us to improve our test.*

Thank the student for his or her time and provide a gift card.

## SMALL-SCALE TRYOUT GUIDE AND PROTOCOL

Text written in *italics* is to be read aloud by the interviewer.

NOTE: The interviewer should not read the script word-for-word but should be familiar enough with its content to conduct the interview in a natural and conversational manner, paraphrasing or giving further explanation as appropriate. For example, facilitators should be attentive to the language comprehension of younger students when delivering scripts. Text in brackets is generic text that will be tailored based on task specifics.

### I. SESSION INFORMATION

The interviewer should complete the information from rows one to three prior to the beginning of the tryout session. Rows four and five are to be completed at the end of the tryout session.

Ref. #	Preliminary Information	Data
1	Name of interviewer	
2	Date	
3	Start time of interview	
4	End time of interview	
5	Special circumstances that may have affected the tryouts session [Do not ask test taker, just record observations.]	

### II. INTRODUCTION SCRIPT

*Hello, my name is \_\_\_\_\_ and I work for EurekaFacts. I am here with my colleagues [introduce colleagues]. It's nice to meet you, and thank you very much for helping us out today.*

*Let me begin by explaining why you're here and what you're going to be doing today. You are participating in a special study to try out new social science tasks. This is part of something called the National Assessment of Educational Progress, or NAEP for short, which is conducted by the National Center for Education Statistics within the U.S. Department of Education. Today we'll be asking you to try out a task [and/or] a small set of new test questions that are being developed for eighth-graders all over the United States.*

*If at any time you decide you do not want to go on, that is your choice and you may stop.*

*After you complete an item set, we may ask you some follow-up questions. What you say will not be shared outside of the research project team. It may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law. [If needed, reference: (20 U.S.C. §9573 and 6 U.S.C. §151.)] We will record audio so we can review what you say later, but only so that we can understand how our test is working and how we can make it better. Overall, this session should take about <indicate correct length> minutes.*

*We will work at the same time to do one item set.*

*Do you have any questions?*

[NOTE: If a student is no longer interested in participating, thank the student for his or her time and end the tryout session for that one student only; continue with all others.]

### **Task Instructions**

*Okay, now, I'm going to give you an item set to complete.*

*This is a timed activity, which will last for <indicate length of activity> minutes, and everyone will begin at the same time.*

*All of the instructions will be displayed on your computer screens.*

*The item set you are about to do is something that students, like you, will do on the computer. However, we aren't finished making the item set yet, so there may be some parts that don't work. Try to work through and complete the item set as best as you can.*

*You will not be graded on what you do during the task, but please answer these questions as if it were a real test.*

*We will all work at the same time. First I would like you to read the instructions. Once everyone has gone through the instructions we will begin the item set together. I will start the timer and I will stop you once time is up.*

*If you finish early, please sit quietly and wait until the time is up. Wait until everyone is done, and then we will submit your answers together.*

*Okay, I will come around and open the item set for each one of you, but please do not begin until I say that you may start.*

*Okay, now that everyone is ready, you may begin the item set.*

**START THE TIMER NOW. STUDENTS HAVE <XX> MINUTES TO COMPLETE THE ITEM SET AND/OR QUESTIONS. STOP STUDENTS AT <XX> MINUTES EVEN IF THEY HAVE NOT FINISHED.**

Wait either for all students to complete the item set questions OR for the full amount of time to be up.

Once students have completed the item set, make sure that all students exit the task and submit their answers.

### **III. POST-TRYOUT FOLLOW-UP QUESTIONS**

After completing the tryout item sets, the interface will provide some follow-up questions. The post tryout questions will include some or all of the following:

- A set of six standardized social science multiple-choice questions that students will be asked following the task.
- Four survey questions that will provide information on prior experience with digital resource use and/or current and prior experiences with assessments.

#### **Additional Questions: Standardized Post Task Social Science Questions**

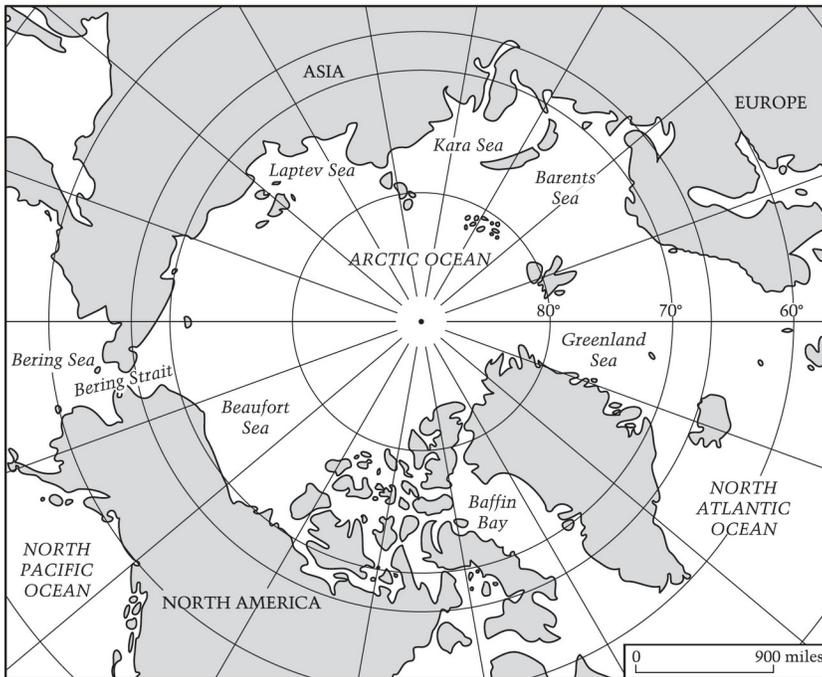
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- C. Don't Recall**

**Overall, completing the social science questions on the tablet was:**

- A. very easy.**
- B. easy.**
- C. difficult.**
- D. very difficult.**

#### **IV. POST-TRYOUT GROUP DISCUSSION SESSION**

At the conclusion of some tryouts, the moderator will ask the student up to three task-specific questions. The following are some examples of questions that might be asked at this stage.

- *Have you studied anything related to this task in school, or have you learned about or come across these things in your own life? [If yes:] What have you learned or studied or experienced that is related to this task?*
- *Did any of the tasks confuse you?*
- *What ways could we change the task to make it better?*
- *Did the <images, videos, audios, etc.> for the task help you answer the questions asked?*

## V. DEBRIEFING AND THANK YOU

*Before we finish, I'd like to hear what you all thought about what you've been doing.*

*Is there anything else any of you would like to tell me about working on the test questions?*

*Did you have any problems understanding <any of the questions/something specific>?*

*Did you have any problems understanding what you were supposed to do to answer any of the questions?*

*Is there anything that you think could make <this/these> test question[s] clearer?*

*Is there anything you would like to ask me about what we did today? [Answer students' questions.]*

Thank participant(s) for their time and escort them to the front desk. Provide a gift card to each participant.