

# Sample Assessment Items

Typical Question- 6<sup>th</sup> grade level

$$\frac{1}{2} \div \frac{1}{4} = n$$

$$\frac{1}{2} \times \frac{4}{1} = n$$

$$\frac{1}{2} \times \frac{4}{1} = \frac{4}{2}$$

$$\frac{1}{2} \div \frac{1}{4} = 2$$

# Mathematical Practice Question

Step 1  $\frac{1}{2} \div \frac{1}{4} = n$

Step 2  $\frac{1}{2} \times \frac{4}{1} = n$

Step 3  $\frac{1}{2} \times \frac{4}{1} = \frac{4}{2}$

Step 4  $\frac{1}{2} \div \frac{1}{4} = 2$

1. Describe, in specific mathematical terms, why it was necessary to invert and multiply in Step 2.
2. Provide a mathematical model which explains what the number 2 represents in Step 4.

# UPPER ELEMENTARY (5<sup>th</sup> grade )

## Gas Bills, Heating Degree Days, and Energy Efficiency

*Here is a typical story about an Ohio family concerned with saving money and energy by better insulating their house.*

Kevin and Shana Johnson's mother was surprised by some very high gas heating bills during the winter months of 2007. To improve the energy efficiency of her house, Ms. Johnson found a contractor who installed new insulation and sealed some of her windows. He charged her \$600 for this work and told her he was pretty sure that her gas bills would go down by "at least 10 percent each year." Since she had spent nearly \$1,500 to keep her house warm the previous winter, she expected her investment would conserve enough energy to save at least \$150 each winter. (10% of \$1,500) on her gas bills.

Ms. Johnson's gas bill in January 2007 was \$240. When she got the bill for January 2008, she was stunned that the new bill was \$235. If the new insulation was going to save only \$5 each month, it was going to take a very long time to earn back the \$600 she had spent. So she called the insulation contractor to see if he had an explanation for what might have gone wrong. The contractor pointed out that the month of January had been very cold this year and that the rates had gone up from last year. He said her bill was probably at least 10% less than it would have been without the new insulation and window sealing.

Ms. Johnson compared her January bill from 2008 to her January bill from 2007. She found out that she had used 200 units of heat in January of 2007 and was charged \$1.20 per unit (total = \$240). In 2008, she had used 188 units of heat but was charged \$1.25 per unit (total = \$235) because gas prices were higher in 2008. She found out the average temperature in Ohio in January 2007 had been 32.9 degrees, and in January of 2008, the average temperature was more than 4 degrees colder, 28.7 degrees. Ms. Johnson realized she was doing well to have used less energy (188 units versus 200 units), especially in a month when it had been colder than the previous year.

Since she used gas for heating only, Ms. Johnson wanted a better estimate of the savings due to the additional insulation and window sealing. She asked Kevin and Shana to look into whether the "heating degree days" listed on the bill might provide some insight.

Argon Energy Co.	Customer	Bill Date
	Ms. Arlene Johnson	January 31, 2008
	42 Bluebonnet Ave.	<b>Account #</b>
	Columbus, OH 43205	55-733420
		Residential
<b>Current Itemized Bill</b>		
	December 30	reading actual 8300
	January 31	reading actual 8400
	<b>Total units used January 2008</b>	<b>188</b>
<b>Energy Use History</b>		
	<b>Total units used January 2007</b>	<b>200</b>
	January 2007	1000 heating degree days 0 cooling degree days
<b>TOTAL CURRENT CHARGES</b>		<b>\$235</b>

# Sample item: performance event

- a. Assess the cost-effectiveness of Ms. Johnson’s new insulation and window sealing. You will need to research on “heating degree days” on the internet. In your response, you must do the following:
1. Compare Ms. Johnson’s gas bills from January 2007 and January 2008.
  2. Explain Ms. Johnson’s savings after the insulation and sealing.
  3. Identify circumstances under which Ms. Johnson’s January 2008 gas bill would have been at least 10% less than her January 2007 bill.
  4. Decide if the insulation and sealing work on Ms. Johnson’s house was cost-effective and provide evidence for this decision.

Submit

# Sample item: performance event

- b. Create a short pamphlet for gas company customers to guide them in making decisions about increasing the energy efficiency of their homes. The pamphlet must do the following:
1. List the quantities that customers need to consider in assessing the cost-effectiveness of energy efficiency measures
  2. Generalize the method of comparison used for Ms. Johnson's gas bills with a set of formulas, and provide an explanation of the formulas.
  3. Explain to gas customers how to weigh the cost of energy efficiency measures with savings on their gas bills.

When you have completed your pamphlet, upload it using the button below.

Watch the video of an actual roller coaster ride and the animation showing the same roller coaster. You will be asked to determine at what point the roller coaster car has the most **kinetic energy**.

Select the activity you would like to do. Then use controls below the images to view the video or the animation:

Video    Animation    Answer Space

VIDEO   ANIMATION

700-77

2

At what point does the roller coaster car have the greatest amount of kinetic energy?

To answer, select "Answer Space." Then click on the red roller coaster track in the answer space to show the correct location. To change your answer, click on a different point along the red roller coaster track.



# Problem 1

How do different payload masses affect the altitude of a helium balloon?

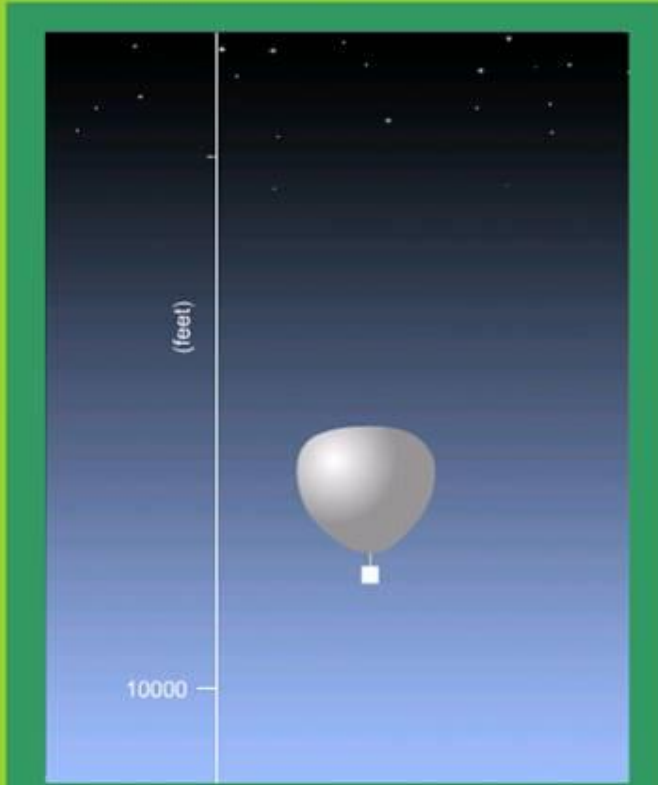
## Design Experiment



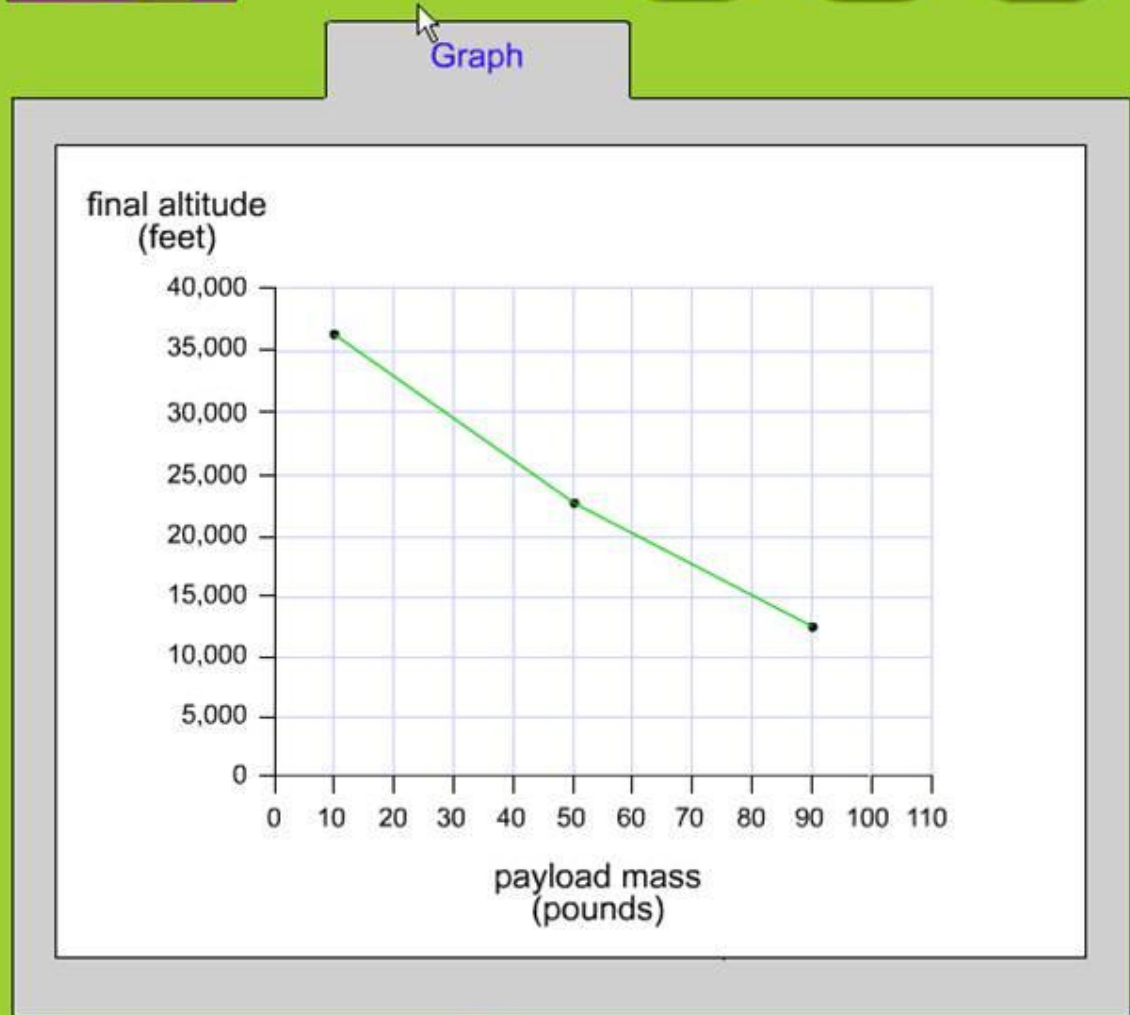
## Run Experiment



## Interpret results



Altitude (feet)	Balloon Volume (cubic feet)	Time to Final Altitude (minutes)
12174	3083	122
Payload Mass (pounds)	Amount of Helium (cubic feet)	
90	2275	



Glossary

Science Help

Computer Help

Next



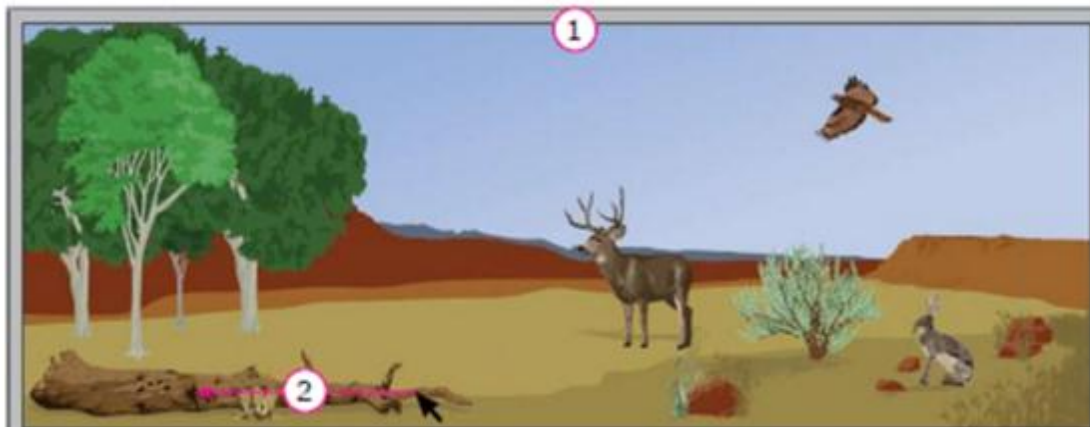
Look carefully at the Utah ecosystem shown. Sort the organisms in the ecosystem into three groups: producers, consumers, and decomposers.

There are two ways to explore the scene.

1. Move the mouse cursor over the scene to view organisms more closely.
2. Hover the mouse cursor over the name of an organism in the Word Bank to highlight the organism in the ecosystem.

Click and drag the names of organisms from the Word Bank to the correct places in the chart below.

- You may move the words in the chart after you have placed them.
- To complete the question, place all the organisms in the chart.



Word Bank	Producers	Consumers	Decomposers
Bacteria Cottonwood Fungi Grasses Jackrabbit Mule deer Red-tailed hawk Sagebrush			

Clear all

## Lower Elementary math question

4. If an item costs 50 cents  
how much more money  
would you need?



Lower Elementary question (2<sup>nd</sup> grade possibly):

**5. Your mother sends you in to the store to buy something she wants.**

She tells you that the item costs somewhere between 1 cent and 99 cents.

You only have pennies, nickels, dimes and quarters in the money jar.

What is the least number of coins you can take with you to make change without going over \$1.00?



## Sample Item • Technology Enhanced

A spinner has 10 sections of equal size. Each section on the spinner is labeled with one letter (A, B, C, or D). The arrow on the spinner was spun 40 times. The results of the spins are recorded in the table below.

**Spinner Results**

Letter	Number of Spins
A	8
B	12
C	4
D	16

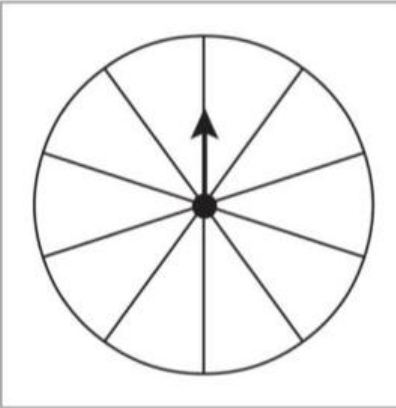
Based on the data in the table, complete the spinner below to show the number of sections that are most likely labeled with each letter. Click on the letter you want to select. Then click where you would like to place the letter on the spinner.

A

B

C

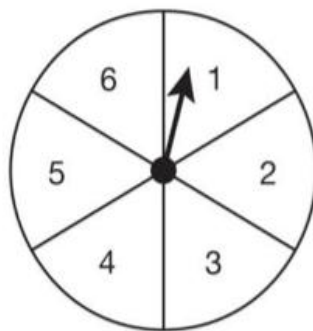
D



Submit

## Sample Item • Technology Enhanced

The spinner below is divided into six equal sections. Each section is marked with a number from 1 to 6.

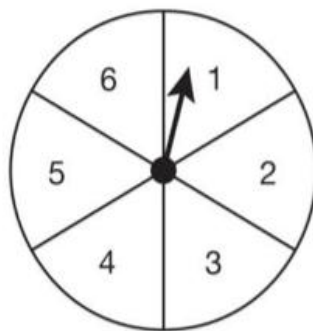


- a. The theoretical probability of spinning each number is  $\frac{1}{6}$ . Based on this probability, how many times should each number occur in 20 spins?

*(continued)*

## Sample Item • Technology Enhanced

The spinner below is divided into six equal sections. Each section is marked with a number from 1 to 6.



- a. The theoretical probability of spinning each number is  $\frac{1}{6}$ . Based on this probability, how many times should each number occur in 20 spins?

*(continued)*

## Sample Item • Technology Enhanced

- c. Explain clearly why your answer from **part a** is different from or the same as the results given in the table above.

Enter response here



Submit

- d. If the spinner were spun 200 more times, how would the frequency of the results be affected?

Enter response here




Submit



# Sample Item • Constructed Response


The Hardwood Furniture Company manufactures small tables and chairs. It costs \$30 to make each table and \$20 to make each chair. The amount available to produce all the tables and chairs in one week is \$1,200. Let  $t$  represent the number of tables produced and  $c$  represent the number of chairs produced.


- a. The equation for the cost of making furniture for one week is  $30t + 20c = 1,200$ . On the grid below, construct a graph of this equation (with correct labels and scales).
- b. The Hardwood Furniture Company always produces two chairs with each table. Write an equation that represents the number of chairs ( $c$ ) in terms of the number of tables ( $t$ ). Graph and label this equation on the same grid used for **part a**.


Draw angle 


Draw line 


Label **A**

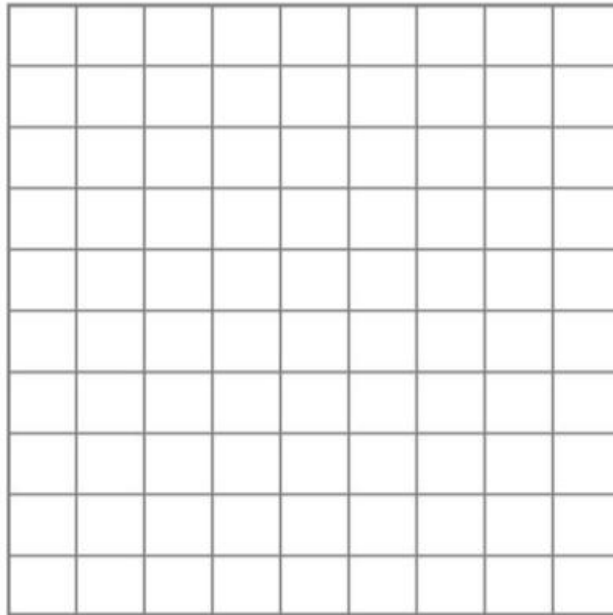
Point 

Pencil 

Protractor 

Eraser 

Calculator 



Submit

(continued)

## Sample Item • Constructed Response

- c. Determine the number of tables and chairs the Hardwood Furniture Company can produce per week based on the production costs and the amount of money available (i.e., \$1,200). Round the answer appropriately.
- d. Explain how the answer to **part c** is indicated on the graph.

Enter response for parts c and d here

Submit

## Sample Item • Extended Performance Event

### Americans Dreaming

We are shaped by the stories we are told and that we tell. One of the most powerful and longstanding stories in the United States of America is one about how, with determination, grit, and maybe a bit of luck, a person can become anything he or she wants to be. This is the legend of the American dream. This idea—and the criticisms of it—is a mainstay of American writing and media. Writers, filmmakers, reporters, and others have long been fascinated by the dream of a land where everything is possible. Evidence of this fascination can be found in the countless stories Americans have produced—whether in private, in print, or in public media. Our lives are wallpapered with the accounts of American dreams—in the making, remembered and romanticized, or broken.

There are two major parts in this performance assessment. In the first part, you will be asked to complete a task in which you synthesize the various perspectives on the American dream you have encountered in high school and elsewhere. Your analyses of these texts and the work you do to select, arrange, and understand the different perspectives each offers are important work in and of themselves, but they also prepare the way for the inclusion of an additional voice—your own. In the second part of the assessment, you will have the chance to offer your own perspective on the American dream by crafting a text of your own about an American dreamer you know.

*The parts of this performance assessment are sequenced in a certain order. Be sure to complete them in order because the work you do in the first parts will help you with the later portions of the assessment. The chart on the next page shows what you will be expected to do and submit at the end of this assessment. The specific prompts for each of the tasks are found in the pages that follow.*

(continued)

## Sample Item • Extended Performance Event

### Task Overview

Task	What You Will Do	What to Submit
Part 1	Select 3–5 texts that you will focus on for your anthology: “Perspectives on the American Dream.” Make notes on each text.	<ul style="list-style-type: none"><li>• one page of notes on each selected text saved electronically</li></ul>
Part 2	Synthesize the various perspectives on the American dream represented in your selection of texts.	<ul style="list-style-type: none"><li>• 1,000 word typed essay saved electronically</li></ul>
Part 3	Conduct research on an individual to create an original profile of an American dreamer. You may choose someone you know personally or someone that you can learn about through research.	<ul style="list-style-type: none"><li>• 750–1,000 word typed essay saved electronically</li></ul>
Part 4	Write a reflective essay on what you learned from completing the performance assessment.	<ul style="list-style-type: none"><li>• 250–500 word typed commentary</li></ul>

**Note:** Word count limits are guidelines and not strict requirements.

*(continued)*

## Sample Item • Extended Performance Event

### I. Perspectives on the American Dream

At this point in your career as a reader and writer, you already know a lot about what other people say for and against the American dream. In this task you will have an opportunity to take stock of and reflect on that learning—to gather texts you've read previously that grapple with the theme and to notice the arguments different authors make about whether the American dream is a driving force or an illusion.

Your teacher will lead a whole class brainstorm to list several texts you have read in high school English or that you have encountered elsewhere that touch on the idea of the American dream. These texts may be fiction or nonfiction, print or other media such as film. The aim is to gather a group of texts, each of which makes an argument about the American dream (i.e., where people's lives are shaped by their belief in, pursuit of, or disappointment in searching for that dream).

**Part 1. Select three to five texts dealing with the American dream for the following task.** The selected texts must represent at least two different perspectives and must include at least two different types of text (e.g., print text, visual media, audio media, multi-media, digital media). **At least two texts must be print (written) texts** (or a form of text with written versions of the text, for example, a transcript, script, or lyrics).

*(continued)*



## Sample Item • Extended Performance Event



For EACH of the texts you chose, make notes in response to the following questions:

- What message or perspective about the American dream is conveyed in the text?
- What methods are used to convey this perspective? How effective are these methods in persuading/appealing to the audience?
- What are the conditions in the world (historical/cultural) in which this text was produced? How does this knowledge help you understand the text? (You may need to do some research to obtain this information.)
- How credible (believable) is this perspective on the American dream?

In your notes, please refer to specific examples from the texts to support your observations. These notes will be submitted to your teacher to be scored as part of this performance event.

You should develop one page of notes per task that can be saved electronically.

You may work in small groups to study and discuss a common set of texts, but you must complete the written portions of the task individually.

*(continued)*


## Sample Item • Extended Performance Event

### Possible texts may include (not required):

- *The Adventures of Huckleberry Finn* — Mark Twain
- *Sister Carrie* — Theodore Dreiser
- *The House of Mirth* — Edith Wharton
- *The Great Gatsby* — F. Scott Fitzgerald
- *Beloved* — Toni Morrison
- *How the Garcia Girls Lost their Accents* – Julia Alvarez
- *The House on Mango Street* — Sandra Cisneros
- *A Raisin in the Sun* play — Lorraine Hansberry
- “I Have a Dream” speech – Martin Luther King, Jr.
- “A Dream Deferred” poem – Langston Hughes
- “In America” film (2003) – Jim Sheridan
- “When the Levees Broke” film (2006) – Spike Lee
- “American Land” song – Bruce Springsteen
- Photography of Walker Evans, Dorothea Lange, James VanDerZee

(continued)



**Part 2. Synthesizing: “Perspectives on the American Dream” Anthology Project**

Imagine that you are editing an anthology for 11–12th graders entitled, “Perspectives on the American Dream.” Your job is to prepare the introduction to this anthology. In your introduction, please do the following things:

- a) Include the 3–5 texts that you selected in Part 1 of the task and decide how to arrange them in order.
- b) Identify and analyze the varied perspectives on the American dream represented in the texts you selected, including the methods used by each text to convey a perspective.
- c) Compare/contrast and draw connections across the messages about the American dream found in each text (or, perhaps in the case of poems and photographs, the *set* of texts).
- d) Evaluate and draw conclusions about varied perspectives on the American dream represented in your anthology to convey your own perspective on these texts.
- e) Propose a set of questions to focus readers as they consider the perspectives represented in these texts.

*As editor of this anthology, you have the opportunity to put forth your own perspective on the American dream as well as to introduce the perspectives on the American dream represented within and across the texts you select. Your introduction should be clear, to the point, and engaging. This work should be typed and saved electronically.*

**II. Profiling an American Dreamer Task**

In the first part of this performance assessment, you synthesized different perspectives on the idea of the American dream. During that work, you paid careful attention to the arguments others have made about the productivity or legitimacy of this idea and, in doing so, you “sampled” an ongoing conversation about the American dream idea, a discussion that has been going


(continued)

## Sample Item • Extended Performance Event

on for a long time. This task, Profiling an American Dreamer, is designed to give you a chance to become more than a careful observer of this conversation—it is intended to give you a chance to “deal in,” to craft a profile of your own in which you too can weigh in on questions about “the productivity and legitimacy of the American dream.” In this task, you will write a profile about a living American dreamer. You may choose someone you know personally or someone that you can learn about through research.

You may work in small groups to conduct your interviews or research on the person you will profile, but you must compose the profile individually. You may also collaborate with other students to revise and refine your writing (e.g., through writer’s workshop).

### Part 3. Profiling an American Dreamer



As a result of your work in Part 1, you are more aware of the perspectives people have on the idea of the American dream. In this assessment task, you will have the chance to provide an additional perspective on the idea of the American dream, as you compose a profile of an American dreamer you know.

**Writing the Profile:** Write a profile about a *living* American dreamer. In your profile, aim to represent or record some aspect of that person and his or her experience that communicates a perspective on the nature or legitimacy of the American dream. You should conduct a range of research activities as you work on this project. The results of this research—photographs, the results of interviews and observations, and/or secondary text work—could all be a part of your final product. If you use published sources, properly cite your sources and include a References page that indicates where to find texts that were retrieved from the Internet.

Essays like Dan Barry’s “At an Age for Music and Dreams” (*New York Times*, April 15, 2009, accessed at <http://www.nytimes.com/2009/04/15/us/15land.html>) can give you ideas for how your project might eventually look. At the end of your work you should aim to have a 750–1,000 word typed profile that will be submitted electronically.