



Benchmark 6.5

Subject: English Language Arts

State: New Jersey

Student Name: _____

Teacher Name: _____

School Name: _____

Read this article and answer the questions that follow.

A House of Cards

by Pamela Dell

1. A house of cards? Sounds flimsy, doesn't it? Not if the architect is 31-year-old Bryan Berg. He's made a career out of building spectacular card houses, stadiums, capitols, castles—and the world's tallest card tower. How does he do it?
2. Bryan's structures are amazing because they are made entirely of perfectly balanced, freestanding playing cards. He never uses glue, tape, or anything else to hold the cards together. Nor does he fold the cards. He's discovered another way to make a sturdy house of cards, using a trick from nature.
3. To make plants strong, nature builds them with cells that have tough walls. Rows and rows of these cells form a grid that helps leaves and stems keep their shape. Bees use the same kind of repeating pattern to create sturdy honeycombs, where they live and store honey. Bryan designs similar grids, using cards to create a repeating pattern of cells.
4. He begins with a single cell made by balancing four cards against one another to form a box. Then he repeats the cell over and over, expanding outward to form the grid, which makes a good foundation for a sturdy card structure. The larger the grid, the more weight it can carry. Sometimes Bryan uses several cards, instead of just one, to construct the cell walls, making the grid even stronger. The trick, he tells kids when he speaks in classrooms, is to place your cards as tightly together as possible when laying out your grid, making sure the cards are not leaning at all.
5. After building this solid base, Bryan lays cards across the top to make the floor for the next "story" of the building. He may add towers, columns, steeples, or domes. Using the principle of repeating cells, Bryan builds structures of amazing strength.

In the Cards

6. Not surprisingly, Bryan has always been interested in building things. Growing up on a "big, old farm" in rural Iowa, he had plenty of room to play. "We were in the middle of nowhere," Bryan remembers, "with lots of space to do whatever we wanted. I was always making something, using things like sticks or bales of hay."
7. Bryan's grandfather taught him how to stack cards. Bryan's two interests—building and card stacking—soon combined. But stacking in his family's farmhouse was challenging. "Our old house had wood floors that weren't all level," he reports. "And they weren't very firm. When people walked around, it was like 'earthquake action.' It was a challenge to build something that wouldn't fall down immediately."

8. Bryan constructed tower after tower; he went through a lot of trial and error before he built anything taller than himself. “One day,” he says, “I stumbled on the grid pattern.” When he placed a few decks of cards on top of his grid, he discovered how strong it was. Bryan’s towers began to grow taller.

How Tall Is Too Tall?

9. Bryan’s first Guinness World Record for the world’s tallest card tower came in the spring of 1992, when he was in high school. Learning that the world record was 12 feet 10 inches, Bryan built a slim tower that topped out at 14 feet 6 inches. Done as a project for his geometry class, it took him 40 hours and 208 decks of cards. Since then he’s gone on to win world records for even taller buildings. His latest winner measured 25 feet 3.5 inches and used about 2,400 decks of cards. The building, which tapered to a high, narrow point, had 131 stories.
10. Why don’t these towers fall down? The key is in a good solid base, a repeating pattern of stories, and a tapering top. Bryan likes to point out how card buildings resemble real ones. They are built cell by cell, story by story. The separate parts make one sturdy whole. The heavier the building, the stronger and more stable it is. But the weight can’t all be at the top.

Demolition Derby

11. What goes up must come down—even Bryan’s magnificent card buildings. But it isn’t easy demolishing them.
12. Bryan learns more about card stacking from tearing down his works—he likes to blow them apart with a leaf blower—than from creating them. That’s because the demolitions show him where the weak points are. The strongest parts of his buildings always take longer to collapse.
13. After spending so much time building something so cool, Bryan admits it’s sometimes painful to see his structures destroyed. But he likens his work to the building of a sandcastle or an ice sculpture.
14. “They wouldn’t be as special if they were permanent,” he points out. “My buildings are like snowdrifts, or clouds in the sky. They can’t last forever.”

1 According to the article, which natural structure is a model for Bryan's card structures?

(A) a thundercloud

(B) a honeycomb

(C) a sand dune

(D) a snowdrift

2 What was Bryan's first world record?

(A) tallest card tower

(B) widest card dome

(C) heaviest card house

(D) sturdiest card structure

3 Bryan's hobby is the result of combining which two boyhood interests?

- (A) plant cells and honeycombs
- (B) world records and geometry
- (C) building things and stacking cards
- (D) playing cards and designing houses

4 Why was it a challenge for Bryan to build card structures in his family's farmhouse?

- (A) The floors of the house were uneven.
- (B) The ceilings in the house were too low.
- (C) The floors of the house were slippery.
- (D) The windows in the house were drafty.

5 Read this sentence from the article.

The building, which tapered to a high, narrow point, had 131 stories.

In this sentences, the word "tapered" means the top of the building was

- (A) older
- (B) shinier
- (C) stronger
- (D) thinner