

Join the national conversation!

SHOULD OUR USE OF PAPER OR PLASTIC
BE AN INDIVIDUAL CHOICE OR BE
REGULATED BY THE GOVERNMENT?

Word Generation - Unit 3.02

Focus Words

strategy | research | cite | phase | data

WEEKLY PASSAGE



“Paper or plastic?” asks a grocery clerk in Boston. You no longer hear that question in San Francisco. In 2007, the San Francisco Board of Supervisors banned grocery stores from using plastic bags to bag groceries. Groceries are put in paper bags or bags customers bring from home. Many applaud San Francisco for creating the bag law and urge other cities to follow the northern California city’s example. Others say that the city government has overstepped its bounds. They feel the city took action that it should not have taken.

Supporters say banning plastic bags is a good **strategy**. They **cite research** that says plastic bags are bad for the environment. Our country uses 30-100 billion plastic bags per year, and the bags are piling up in landfills. Plastic is not biodegradable, so the plastic bags will stay in the landfills for hundreds of years. Plastic bags also litter the streets. Some drift out to sea and kill turtles and other sea creatures. Plastic bags are made from petroleum, or oil, a costly resource. People who support the ban say that our earth is being polluted and its resources

are being wasted. These people argue that we need government intervention to protect the earth and its resources.

Opponents state that city governments have no authority to ban plastic bags. They argue that storeowners are doing their part to help the environment. Some storeowners are **phasing** in recycling strategies, such as placing recycling bins for the plastic bags in their stores. People against the ban also point out that plastic bags do not pose any immediate danger. They claim that there are no **data** that prove that paper is better. After all, we chop down trees to make paper bags. In addition, paper bags weigh more than plastic bags, so it costs more to transport them from the factory to the store. They are not as strong as plastic, so we use more of them. Finally, people against the ban argue that private industry pays for the bags, not the taxpayers, so private industry should decide.

What is your opinion? Should city governments ban plastic bags or should the grocery stores decide?

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FOCUS WORDS OF THE WEEK

cite : (verb) to refer to as an example or as proof

FORMS:

EXAMPLES OF USE:

NOTES:

research : (noun) systematically collecting information about a subject

FORMS:

EXAMPLES OF USE:

NOTES:

data : (noun) facts

FORMS:

EXAMPLES OF USE:

NOTES:

phase : (verb) to do in steps according to a plan

FORMS:

EXAMPLES OF USE:

NOTES:

strategy : (noun) a systematic plan or method

FORMS:

EXAMPLES OF USE:

NOTES:



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PROBLEM OF THE WEEK

Option 1: The Washington Post wrote an article about cities that are **phasing** out plastic shopping bags and switching to paper bags. The people in these cities think that this **strategy** will help the environment. However, the article **cites data** that might make them change their minds. Researchers discovered that 2511 BTUs of energy are used to make a paper bag and just 594 to make a plastic bag. Therefore, the article recommends that a better **strategy** to save energy is for shoppers to bring reusable bags from home.

How much more energy is spent making a paper bag than making a plastic bag?

- A) 2,000 BTUs
- B) 817 BTUs
- C) 1,918 BTUs
- D) 1,917 BTUs

Option 2: Taylor is making her weekly trip to the grocery store. Despite the **research** on the benefits of reusable bags, she still uses paper and plastic. She bags her own groceries in two **phases** using a special **strategy**: meats and cheeses in plastic bags, fruits and vegetables in paper.

Write an equation that shows the relationship between the number of paper and plastic bags Taylor uses and the total number of BTU's it took to make those bags. Use the **data cited** in problem one. Let p = the number of paper bags, c = the number of plastic bags, and b = the total number of BTU's.

Discussion Question: **Researchers** have pointed out problems with using paper bags as well as plastic bags. The **data cited** above illustrate one of those problems: making bags takes energy. To protect the environment, some cities passed laws to **phase** out plastic bags. Was this the best **strategy**? Can you think of a better one?

* BTU (British Thermal Unit) is a standard measurement for heat energy.

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THINKING SCIENTIFICALLY

Mr. Seemy and his class were talking about the plastic and paper bags that most people get from the grocery store each time they go. Chantel **cited** her reason for using paper bags instead of plastic, “Most plastic bags take at least a hundred years to break down and be absorbed by the earth.” “Interesting point, Chantel,” responded Mr. Seemy, “but I just read about a new kind of plastic made from corn that is supposed to break down more quickly. It’s biodegradable.”

“Switching to corn plastic could be a **strategy** to help with the problem of too much trash in landfills,” said Chantel. “I think we should **phase** out regular plastic bags.”

“Not so fast, Chantel,” said Mr. Seemy. “You shouldn’t make a claim just because your teacher mentioned an article. Let’s do some **research** to find out more. Maybe someone in our class can help by doing an experiment and collecting some **data**. Anyone interested?”

→ Chantel was very interested and quickly volunteered with her friend Angelo to create an experiment that buried bags in dirt.

Question:

Do paper bags, regular plastic bags, and biodegradable plastic bags break down at different rates?

Hypothesis:

Paper and biodegradable plastic will break down faster than regular plastic.

Materials:

- ▶ Samples of each bag material
- ▶ Work gloves, shovel, labels to stick in dirt, small plot of land
- ▶ Scale

Procedure:

1. Cut out a portion a paper bag with a mass of 250 grams. Do the same with regular plastic and with biodegradable plastic.
2. Bury them in the same area and label each spot.
3. Every two weeks, dig up each sample and measure the mass. Then rebury each sample.

	Paper	Regular Plastic	Biodegradable Plastic
Starting mass	250g	250g	250g
After 2 weeks	196g (moist)	260g (couldn't get all the dirt off)	224g
After 4 weeks	75g (difficult to find all pieces)	246g	116g
After 6 weeks	can't get good measurement - traces of paper only	248g	41g

Chantel and Angelo's Data

Do Chantel and Angelo’s data tell you anything that relates to their hypothesis?

In step 1 of the procedure, the students decided to cut out 250 gram samples of each bag material. Why is it important that the samples have the same mass? How is mass different from size? Do you think their three 250g samples were all the same size?

Even if paper bags biodegrade quickly, it doesn't necessarily mean that they are the best choice for the environment. Why do you think these issues are so complex? Do you think scientists can help?



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DEBATING THE ISSUE

Get ready...

Pick one of these positions (or create your own).

A City governments should ban plastic bags. There is enough research to show that we are hurting the future of the earth. It is the government's responsibility to ensure our safety.

B City governments should limit the number of plastic bags grocery stores give out. People should be encouraged to use paper bags or bring their own.

C City governments should not regulate bags. Grocery stores are private, so the government should not be able to tell them how to operate their business.

D City governments should ban paper bags instead of plastic. Paper bags are more harmful to the environment.

E _____

Get set...

Be ready to provide evidence to back up your position during your class discussion or debate. Jot down a few quick notes:

GO!

Be a strong participant by using phrases like these.

I believe that...

I agree with you...

You make a good point, but have you...

Can you show me evidence in the text that...

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WRITE ABOUT IT

Support your position with clear reasons and specific examples.
Try to use relevant words from the Word Generation list in your response.

Focus Words

strategy | research | cite | phase | data
