

BIG IDEAS, LITTLE PACKAGES

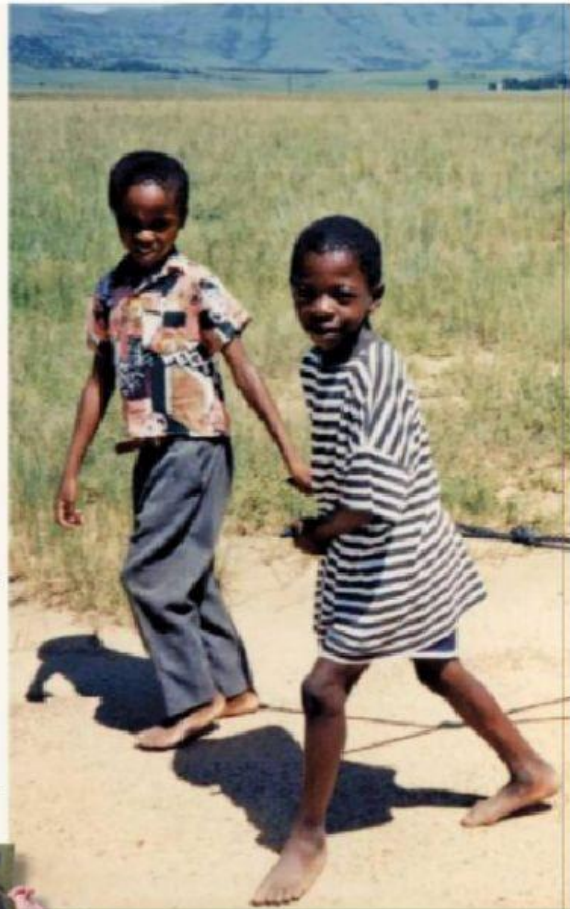
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- Can simple ideas change the world? They just might, one new idea at a time. Creative designers and scientists are working to invent products for communities in developing countries. Some of their **innovations** might solve even the biggest problems, such as improving access to healthcare and clean water.

INFANT WARMER

- Around 19 million low-birthweight babies are born every year in developing countries. These babies weigh less than 5.5 pounds (2.5 kilograms) when they're born. Low-birthweight babies often have difficulty staying warm because they don't have enough fat on their bodies. Many get too cold and die.

To solve this problem, American entrepreneur Jane Chen and a team of people invented the Embrace infant warmer. It looks like a small sleeping bag and is specially



WATER CONTAINER

designed to help keep babies warm. It's filled with wax that easily heats up to 37 degrees Celsius—the normal body temperature.¹ Another **benefit** of the Embrace infant warmer is that it can work without electricity. It's an easy-to-use, low-cost solution. To date, this simple invention has helped save more than 200,000 babies in Africa, Asia, and Latin America.



Embrace infant warmer

¹Your body temperature is how hot or cold your body is.

Clean drinking water is one of the world's most **valuable** resources. Without it, people get sick and die. But getting clean water can be difficult for many people in developing countries. In poor areas, people often have to walk several miles to get clean water for cooking, cleaning, and drinking. They usually have to carry heavy **containers** of water on their heads. Most of them make several trips each day to collect water. This is difficult work, especially for women and children.

- A South African engineer, Piet Hendrikse, came up with a solution to the problem of carrying water: the Q Drum. The Q Drum **stores** 13 gallons (about 50 liters) of water in a rolling container. Made of strong plastic material, it can roll over any kind of ground, **no matter** how rough. Anyone—even young children—can easily pull the drum with an attached rope. With this innovation, people in developing countries can carry more clean water per journey with less effort.

HEALTH DETECTOR

In many developing countries, doctors work with no electricity or clean water. They have to send medical tests to labs² and wait weeks for results. Patients may die while waiting to receive treatment. But a little piece of paper developed by Saudi Arabian scientist Hayat Sindi could change that.

Sindi's **device** is only the size of a postage stamp, but it can help **identify** health problems. It contains tiny holes that are filled with chemicals. When a person places a single drop of blood on the paper, the chemicals react to the blood and cause the paper to change color. This **indicates** whether or not the person has an illness. Doctors can then take action immediately, saving time and lives. Since the health detector is made of paper, it's very light and easy to carry. Health workers can easily bring it with them to perform tests in patients' homes. Best of all, this can be done at a very low cost. No electricity, water, or special equipment is needed to use the device. Sindi explains, "It's a tool that allows even the poorest people in the most medically challenged places to get the tests they need."

²Labs are laboratories—places where scientific research is done.



UNDERSTANDING THE READING

UNDERSTANDING
MAIN IDEAS

A Choose the main purpose of each invention from the pairs of solution statements (a or b).

	Problem	Solution
Embrace Infant Warmer	Underweight babies have difficulty staying warm.	a. regulates body temperature of underweight babies b. measures body temperature and indicates when babies are cold
Q Drum	Many people in developing countries don't have easy access to clean water.	a. cleans water and makes it safe for cooking and drinking b. makes it easier for people to transport water
Health Detector	Doctors in remote areas don't have the equipment to process lab results.	a. helps doctors identify diseases quickly and accurately b. tells doctors what the best treatment is for a disease

IDENTIFYING
DETAILS

B Find details in the reading passage to answer each question below.

1. At what weight are babies considered low birthweight?

less than _____pounds (2.5 kilograms)

2. In developing countries, what is the traditional way of carrying water?

People in developing countries have to walk long _____ to get clean water and carry heavy containers on their heads.

3. What is Hayat Sindi's health detector made of? What benefit does this have?

Paper; it's _____ and easy to carry, so health workers can easily bring it with them to _____ in patients' homes.

4. List two things the infant warmer, Q Drum, and health detector have in common.

They are _____; they help people in developing countries; they are easy to use; they can work without _____