

INDORAMA
VENTURES

Adventures in

**PLASTIC
WORLD**



Content verified by

Thailand Institute of Packaging and Recycling Management for Sustainable Environment (TIPMSE)



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**PLASTIC
WORLD**

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Hello!

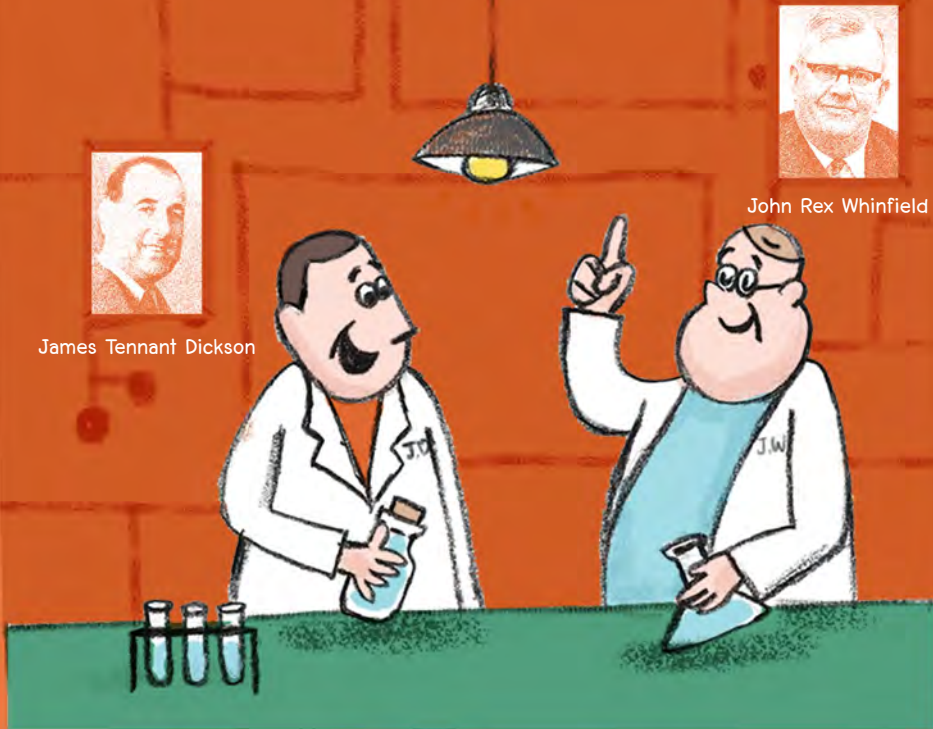
My name is Polyethylene Terephthalate.
Most people know me as PET (P-E-T).
And I'll bet you that just about everyone has used products made from me.

If you would like to know more about me,
make sure to read my story in [Volume 1: Amazing PET](#).



- Lightweight.
- See-through, clear and transparent.
- Color or colorless.
- Difficult to break.
- Difficult for oxygen and carbon dioxide to pass through.
- Very safe. Free of harmful chemicals like BPA.
- Widely used to make food and beverage packaging as well as fiber products for clothing.
- Melting temperature is 250-260°C.

I was invented in 1941 by two British chemists, Mr. John Rex Whinfield and Mr. James Tennant Dickson at a laboratory in Manchester, England.



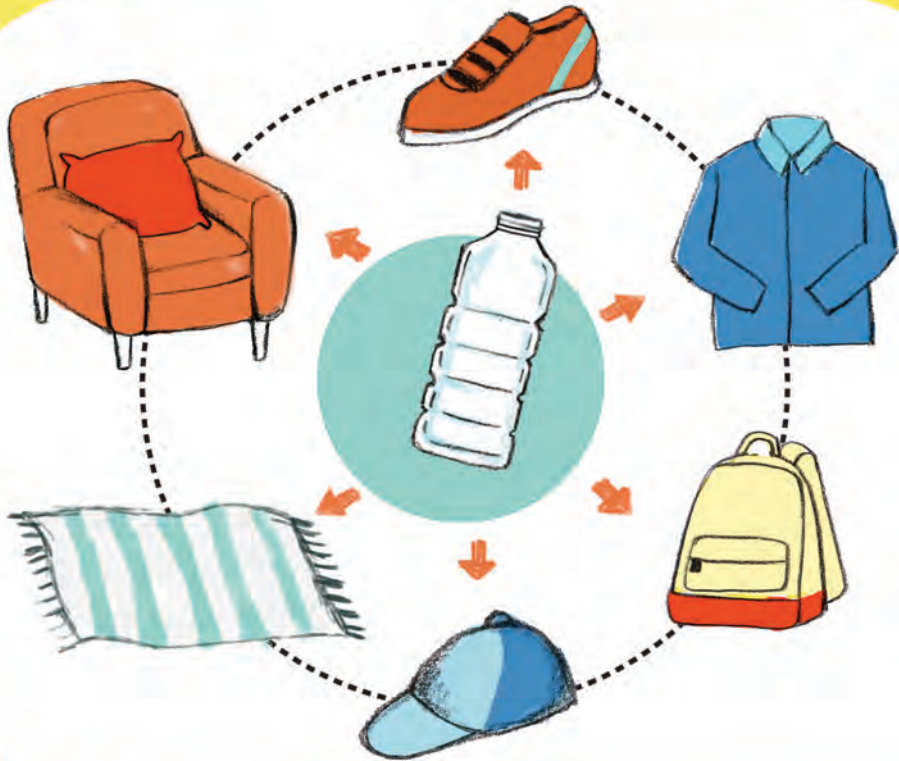
James Tennant Dickson

John Rex Whinfield

PET in Daily Life



PET is 100% recyclable.



Did you know that...?

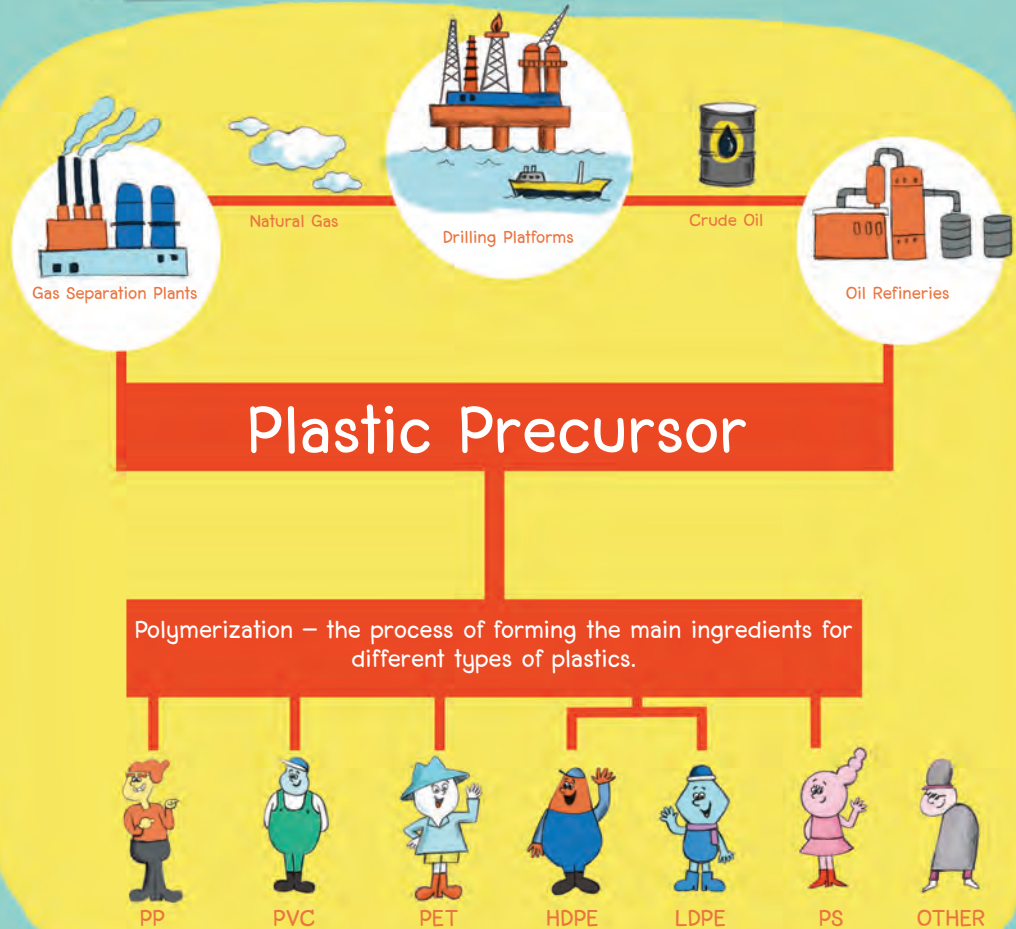
Indorama Ventures is the largest PET producer in the world and we have PET recycler in 3 continents; North America, Europe and Asia.

In Thailand, IVL's PET recycling facility is located in Nakhon Pathom Province.

There are six more types of recyclable plastics besides PET.

Check out the different varieties in the picture below!

Plastic Making Process



Wow!

I want to be friends with all of them, it would be fun!

Then you must go on an adventure to find them. How exciting!



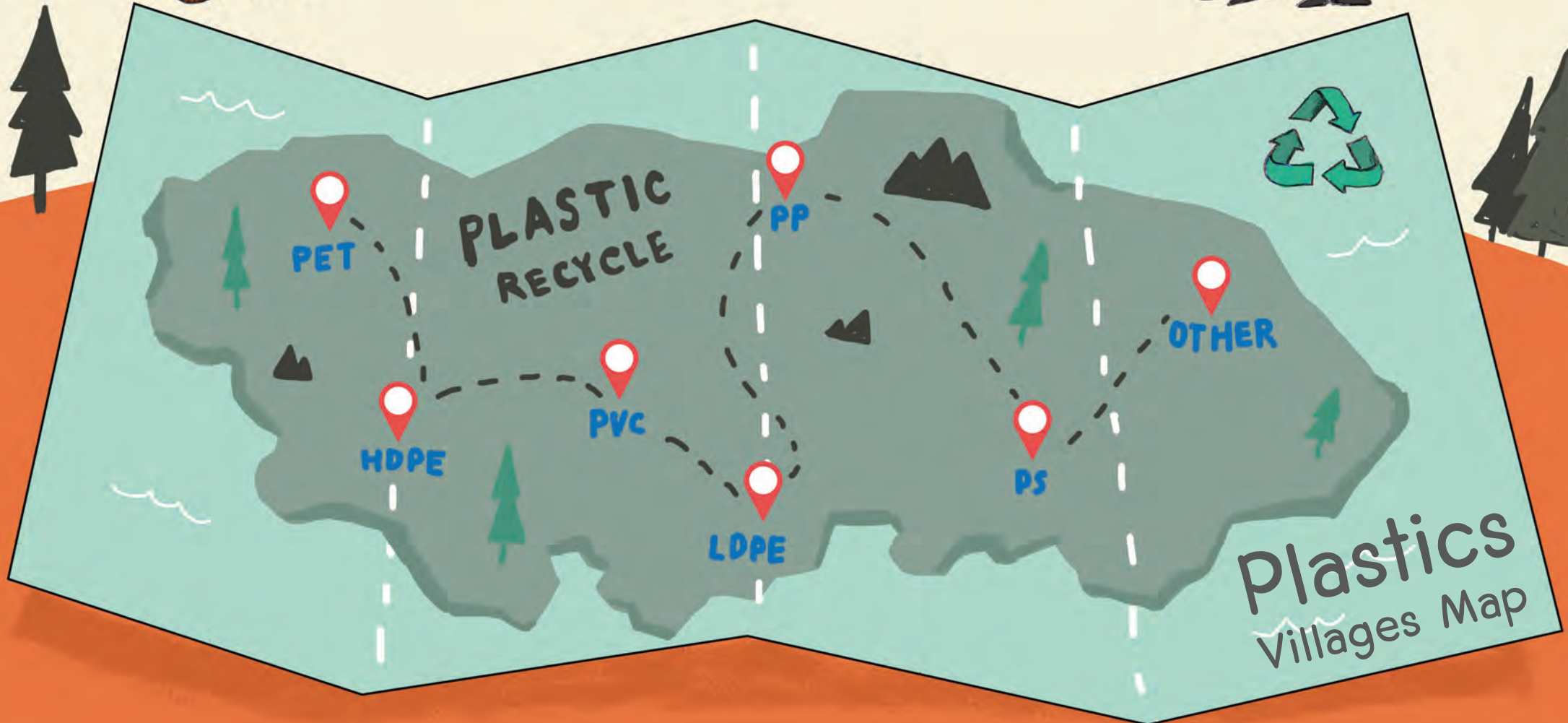


Where should I start?

These six recyclable plastics live in different places.
I think I will look for HDPE first. He seems to live close to me.



Good luck
PET!



HDPE Village

Oh! That looks like the guy I want to meet.



Hi, I'm High Density Polyethylene. You can call me HDPE for short.



HDPE Properties

- Very strong and difficult to break.
- Not transparent.
- Difficult for gases or moisture to pass through.
- Resistant to chemicals, acids, alkalis and heat.
- Melting temperature at 130°C.

About HDPE

HDPE is used to make plastic bags for food and for non-food products. It is important to use the right type of plastic bag to store your foods.



Applications



Milk Bottle



Yogurt Cup



Engine Oil Bottle



Powder Bottle



Shampoo Bottle

HDPE is used to make bottles which we use every day, as well as for pipe and even for plastic benches!

Hey HDPE, I'm going to find more recyclable plastics like us. Do you want to join me?



That sounds great, I would love to!



I think those guys could be who we are looking for.



Sure does, let's go and talk to them. Hello friends!



Hello there! I am Polyvinyl Chloride. Just call me PVC.



Hi! And my name is Low Density Polyethylene. I go by LDPE. We were just about to wander outside our village. Why don't you come and join us for a walk?



PVC & LDPE Village



PVC Properties



- Not transparent.
- Able to mix with colors.
- Resistant to acids and alkalis.
- Strong but breakable.
- Fire retardant.
- Melting temperature is 75-90°C

About PVC: Colored PVC products can be harmful due to lead and cadmium in some colors.

PVC can be recycled into: water pipes, agricultural pipes, traffic cones, plastic furniture, plastic stools, cables, and artificial wood.

Applications



Residential Water Pipes



Clear Tubes



Plastic Doors

PVC is also commonly used to make insulation for electrical cables, food wrapping film, bathroom curtains, plastic table sheets, and artificial leather.



LDPE Properties



- Transparent.
- Flexible but strong.
- Air and moisture can pass through.
- Resistant to very low temperatures. Unable to tolerate heat.
- Widely used to make food bags for freezing.
- Melting temperature is 110°C

About LDPE: LDPE bags are used to keep foods in cold temperature, as cold as -70°C. LDPE is also more flexible compared with HDPE, which is used for keeping foods hot.

LDPE can be recycled into: waste bags, handle bags, waste bins, floor tiles, furniture, and artificial wood.

Applications



Bread Bags



Zip-lock Bags



Ice Bags

LDPE is also commonly used to make diapers, and bags for frozen food as well as sanitary napkins.

Along the way, they meet two more new friends – PP and PS.

PP and PS Village

PET, HDPE, PVC and LDPE walked together and talks for a long time. They eventually arrived at the village of PP and PS without even knowing it. But this is how they were able to meet to new friend, PP and PS, on their journey of discovery

What happened here?
Why is there so much waste?

Many people do not separate their waste.
The waste ends up in rivers or the sea.
It's bad for the environment.

That's awful,
I feel sad

Me too. How can we make sure
people stop hurting the environment ?

I agree.
By the way, I'm HDPE,
what are your name ?

We all need to
care more about
planet Earth.

Impacts of Marine Debris



Birds consume floating debris mistaking it for their food.



Marine waste is non-biodegradable.

Fish consume cigarette butts.



Plastic rings can harm sea turtles.

PP Village

Hello everyone! Let me introduce myself.
My name is Polypropylene,
just call me PP.



PP Properties



- Light weight but strong
- Resistant to heat, impacts and chemicals
- Moisture and air can pass through
- Melting temperature is 160-175°C

About PP: PP is used to make bags for hot foods

PP can be recycled into: car battery cases and bumpers, oil funnels, tail lights, and plastic brooms and brushes.

Applications



Food Containers



Plastic Straws



Electric Insulators



Baby Bottles

PP is also used to make home appliances or bags for hot foods and snacks.

PS Village

Hi all! My name is **Polystyrene**.
Please call me PS.



PS Properties



- Transparent.
- Suitable for printing.
- Fragile and breakable.
- Resistant to acids and alkalis.
- Moderate absorption of air and moisture.
- Melting temperature is 70-115°C

About PS: PS is used to make objects that hold food and drinks.

PS can be recycled to: clothes hangers, CD cases, videos, rulers, thermometer bulbs, light switch covers, thermal insulation materials, and a variety of other equipment.

Applications



Disposable Food Containers



Disposable Water Cups



Disposable Dishes, Spoons and Forks



Foam Bowls



Office Appliances

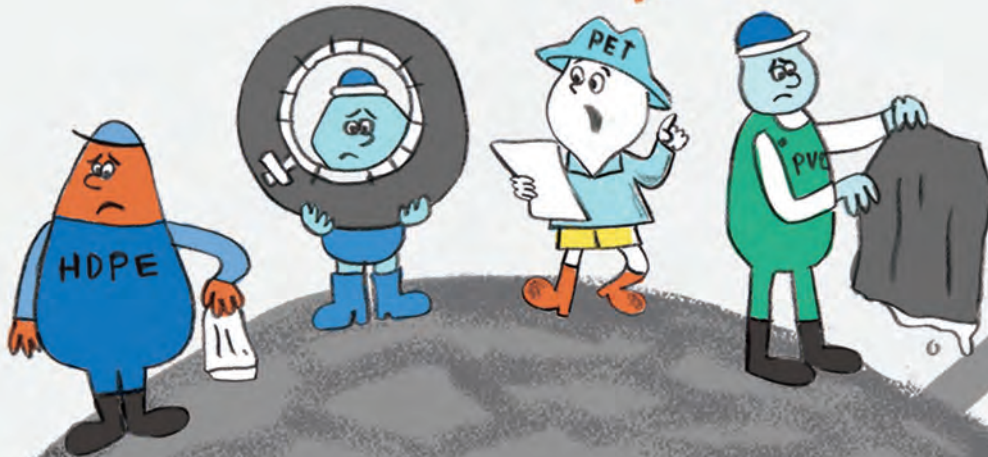


PS plastic is commonly used to make electrical and electronics parts.

They all continued on their journey to find the last plastic village. They searched for a long time but could not find anything. As they continued to search, they were surprised by a large pile of garbage!

Why is there so much garbage?
We must do better.

We can do better !
The easiest way is to
separate your waste!



Waste Separation



If one house has 4 family members, they will produce approximately 400 grams/day of plastic waste.



Therefore, each house will produce waste of around 12 kilograms in one month.

Generally, plastics are classified into 7 types. Types 1 to 6 (which are the six of us) are recyclable, but remember - they need to be sorted properly. Why? Because they cannot be recycled together.

It's really easy to sort plastic waste, which is then collected and sold.

Wow! We can make money from sorting plastic waste? Then I should sell some and buy a couple snacks. Hahaha!

Count me in! Let's sort the plastic waste and help keep an environment clean!



Plastic Recycling Cycle

Examples of products made from recycled PET bottles

Consumers



Indorama Ventures buys post-consumer PET from sellers

Sorting and Bailing

Sorting PET Plastic Waste

Simple steps anyone can do.

You can follow these steps with me and make a difference ?



Drink up

Remove labels

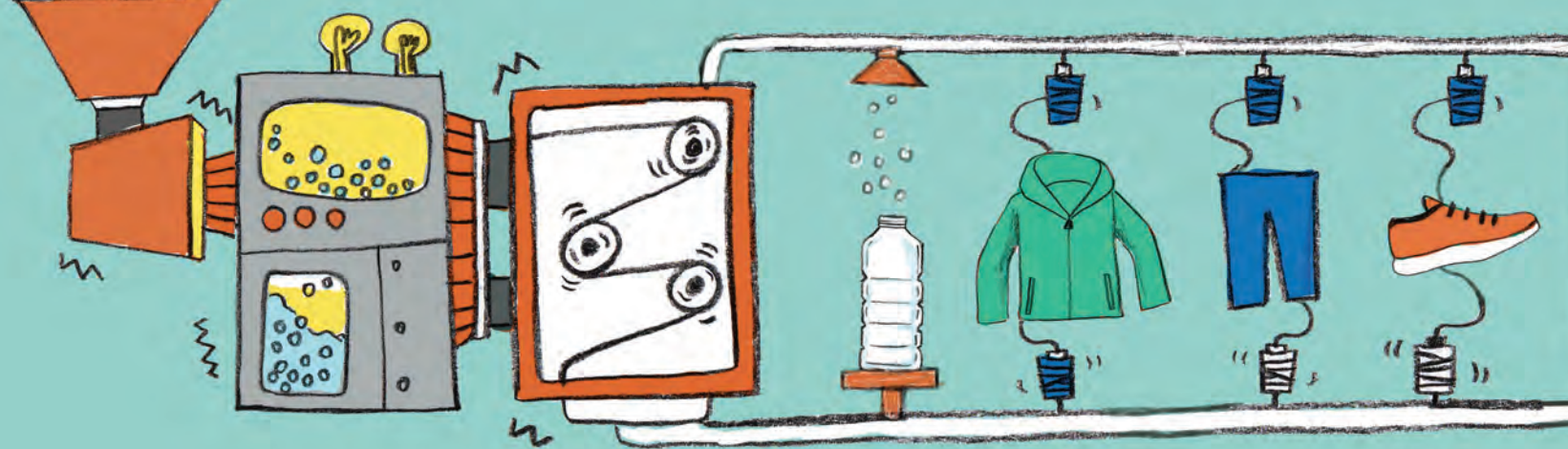
Separate bottle lids

Separate bottles



Proper Plastic Sorting

The label is Type 3 or PVC.
The lid is Type 2 of HDPE.
The bottle is Type 1 or PET.
With these simple steps, we can sort plastic into 3 types.



Recycled PET plastic can be used to produce fibers which can make clothes and all kinds of different stuff, such as shirts, shoes, bags, pillows, carpets, and other kinds of products.

All 7 types of plastic

can be recycled into many new products and materials.



Besides me,
other types of plastic are also
recyclable.



While everyone is busy sorting plastic waste, someone's voice is suddenly heard...



Storms blow garbage into this place and it increases every day! Some of it flows along the river. It became bigger and bigger, and finally, my village was just piled high with garbage. It blocked everything so I couldn't go anywhere. I was kind of like... Trapped!

What happened?
Why were you lying
unconsciously here?



He is the one we are looking for.



I am the OTHER, or, all other types of plastic.

I was born from the compilation of different types of plastic, for example, polycarbonates found in opaque water bottles and clear awning roof. OTHER plastic is often recycled into fertilizer and garbage bags.

Although I am different from you guys, I am recyclable.



You are so mysterious.



As you can see, if we carelessly throw things away or litter just one piece of plastic a day, it can accumulate and become a massive pile of garbage over time.

This improper dumping will pollute the environment, affecting people, animals, our mountains, rivers, lakes and oceans – it will end up hurting everyone! For this reason, let's all pitch in and do our part. Let's make the world a cleaner – and better place to live together!



You can scan this QR CODE to read more online or to share with your friends.



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