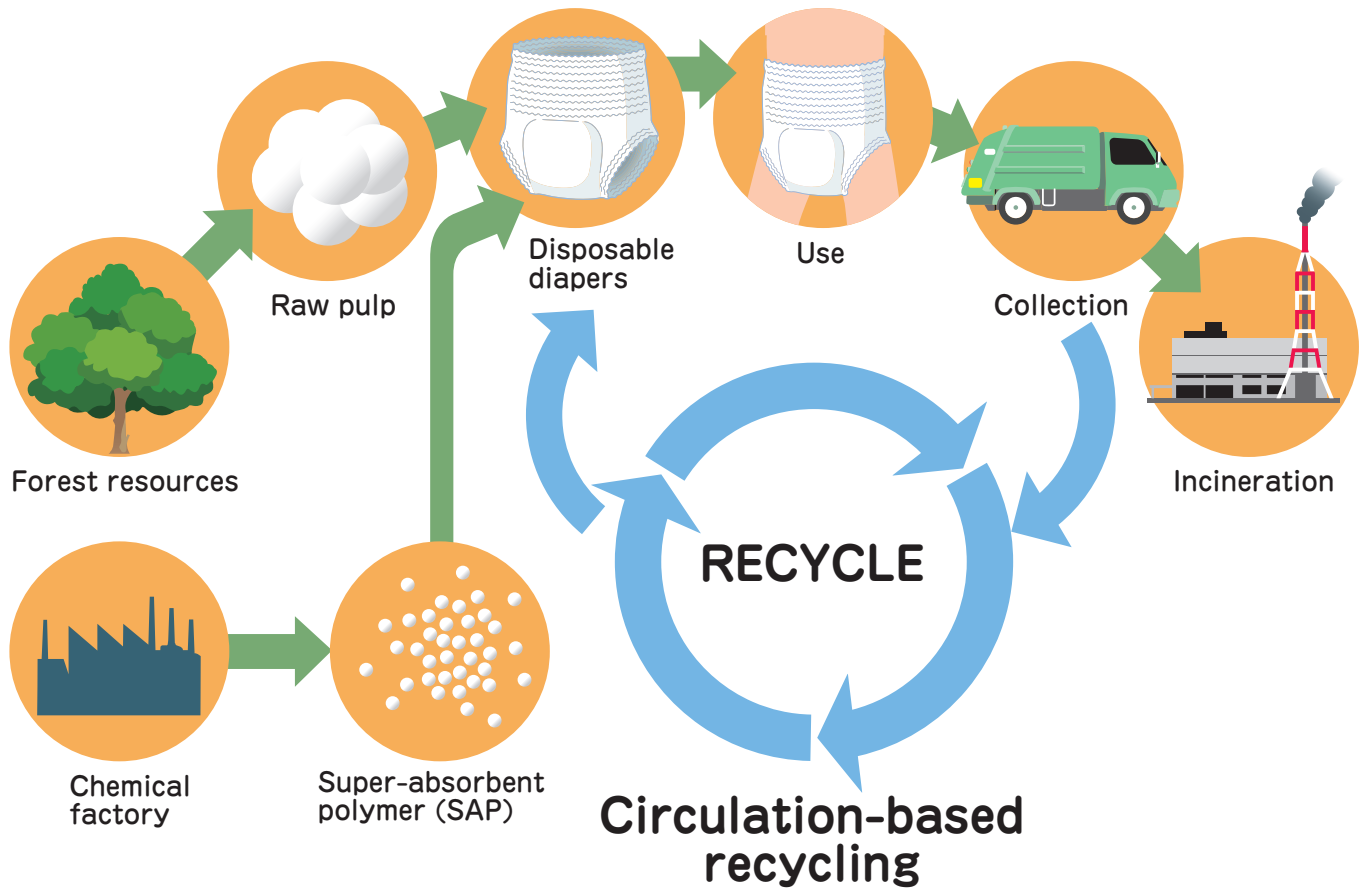


Study Note ①

Unicharm's circulation-based recycling of disposable diapers

Study Theme: What is circulation-based recycling?

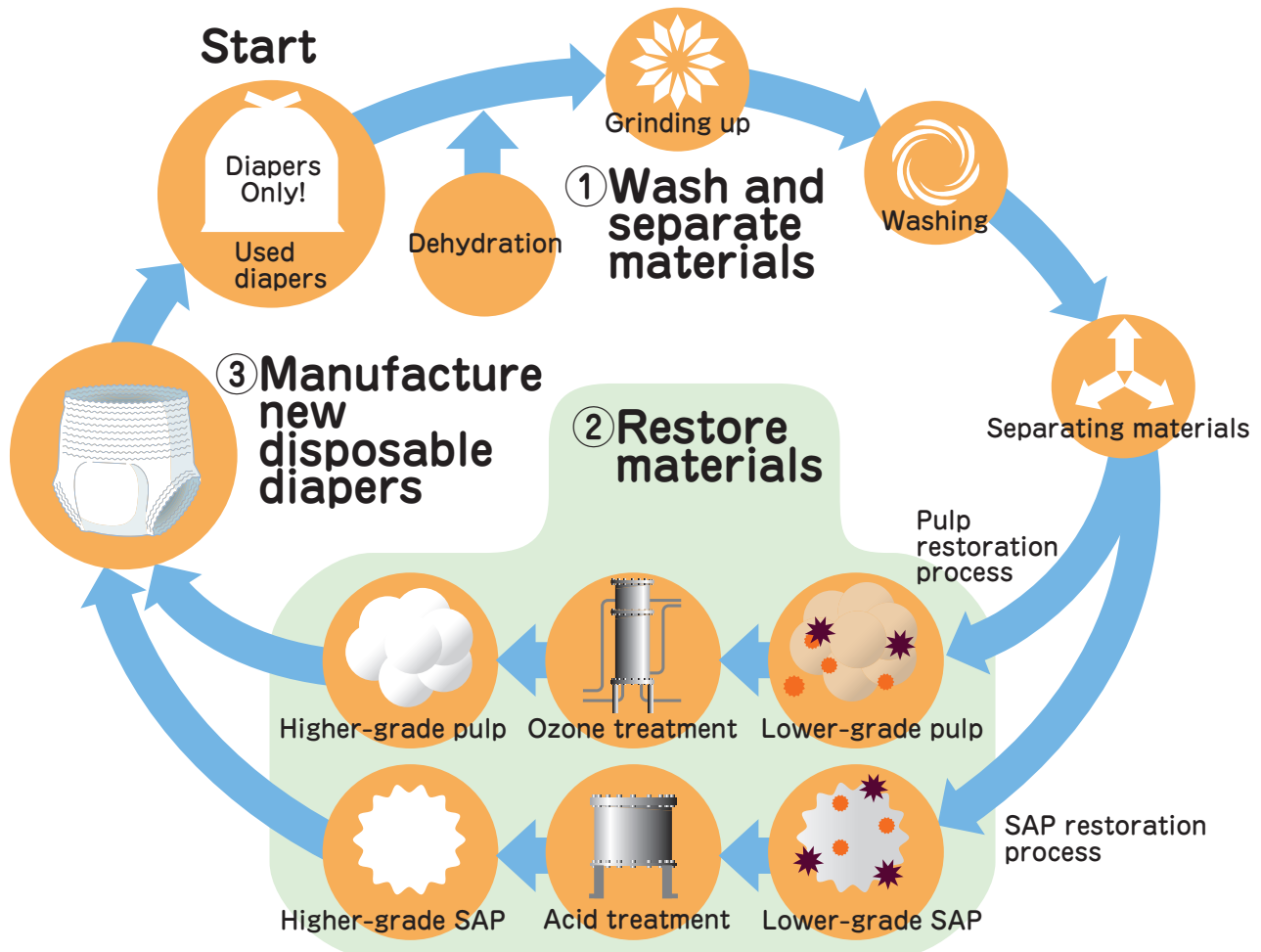


 What makes "circulation-based recycling" different from other types of recycling?

Study Note ①

Unicharm's circulation-based recycling of disposable diapers

World first! Unicharm's diaper circulation-based recycling

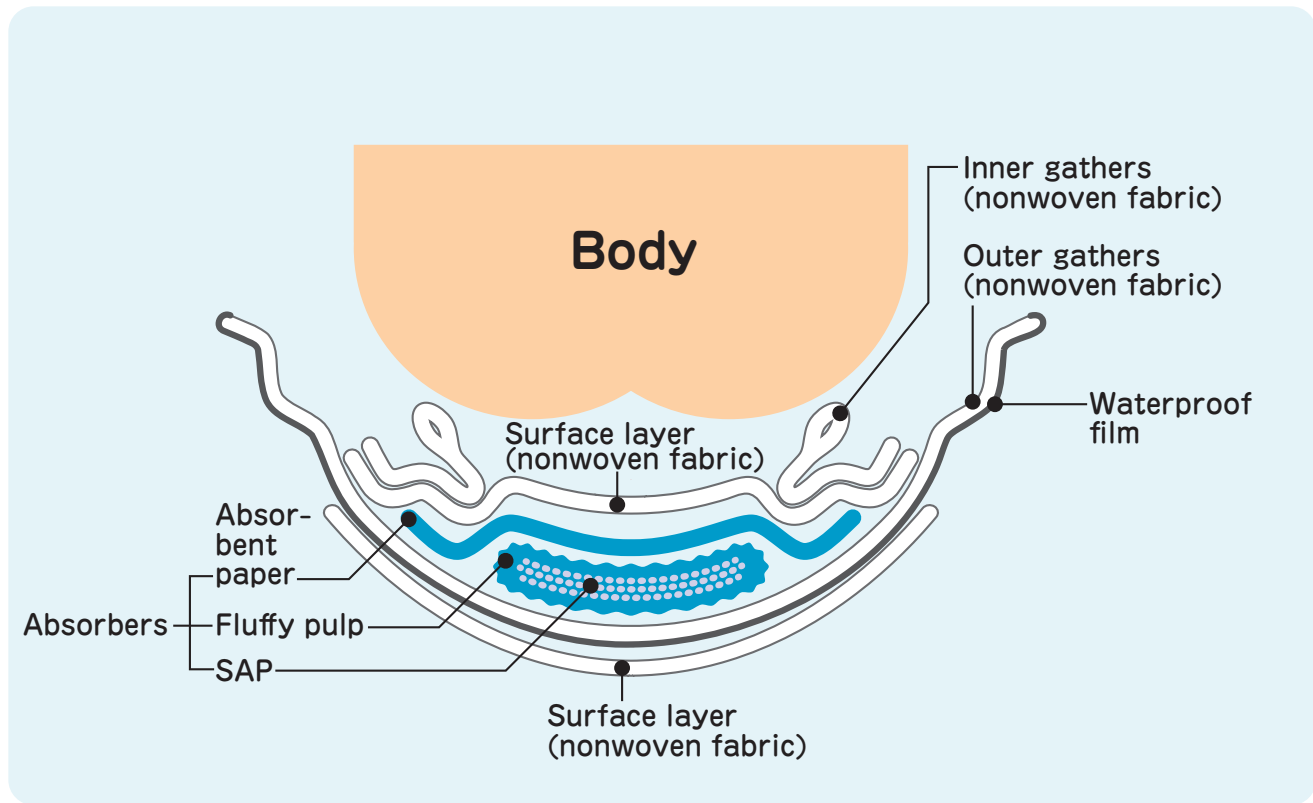


✎ List the steps in the "circulation-based recycling" process.

Study Note ②

Diaper recycling technology

Study Theme: How disposable diapers are made of?



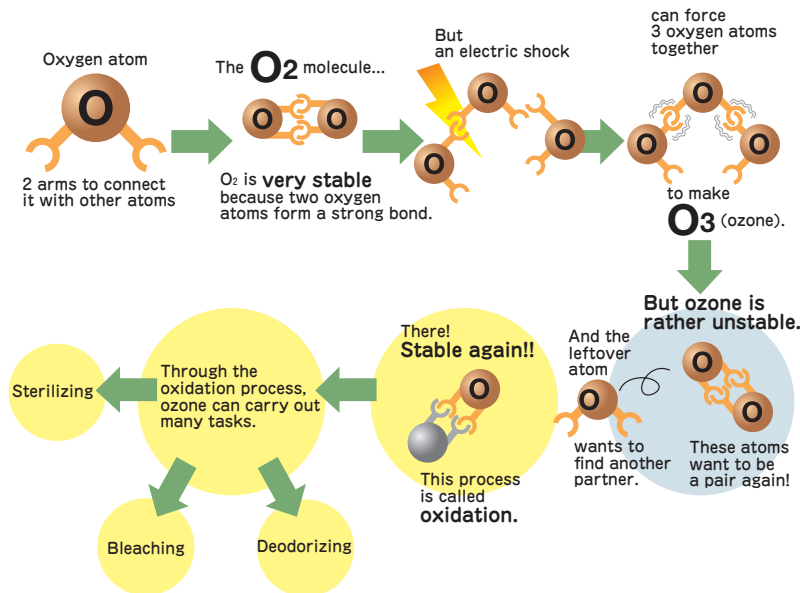
 What are the main materials used in disposable diapers and what does each one of them do?

Study Note ②

Diaper recycling technology

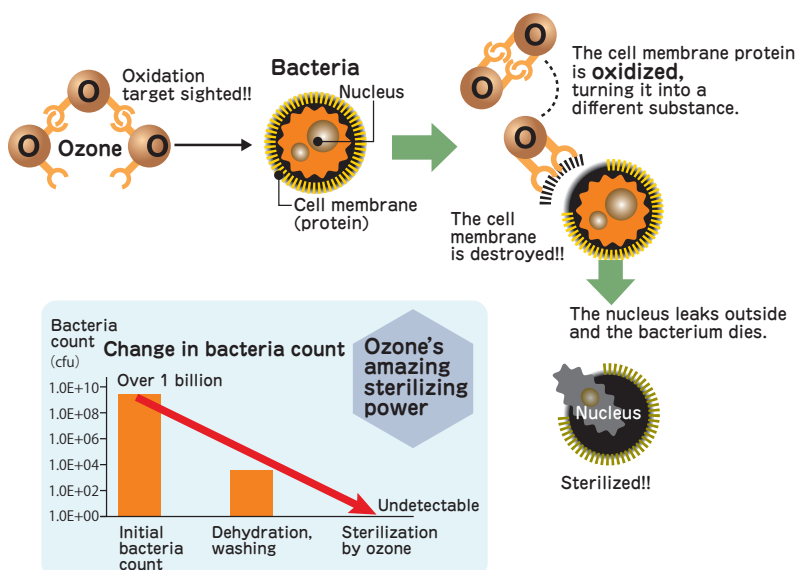
Study Theme: How ozone treatment restores pulp?

① What is ozone?



What is the "oxidation effect" of ozone?

② How ozone kills bacteria?



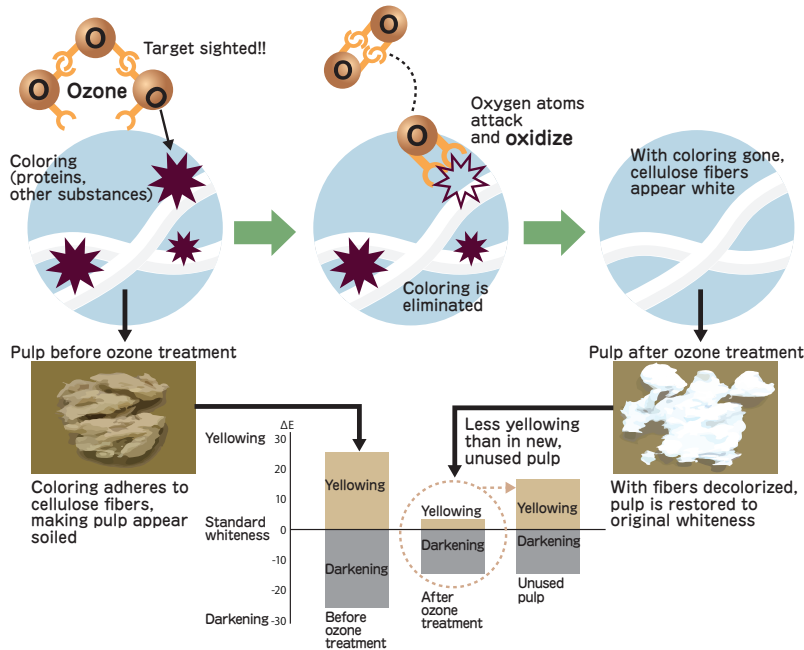
How does ozone kill bacteria?

Study Note ②

Diaper recycling technology

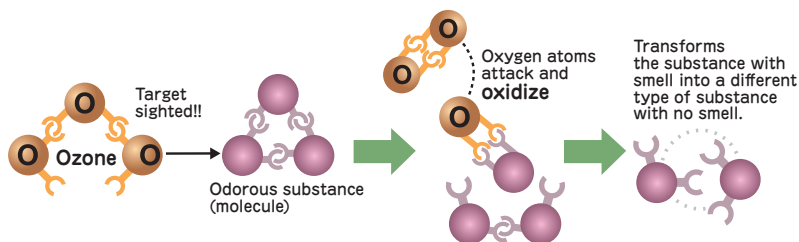
Study Theme: How ozone treatment restores pulp?

③ How ozone bleaches?



Which pigment substances cause the yellowing or darkening of used diapers?

④ How ozone removes odors?



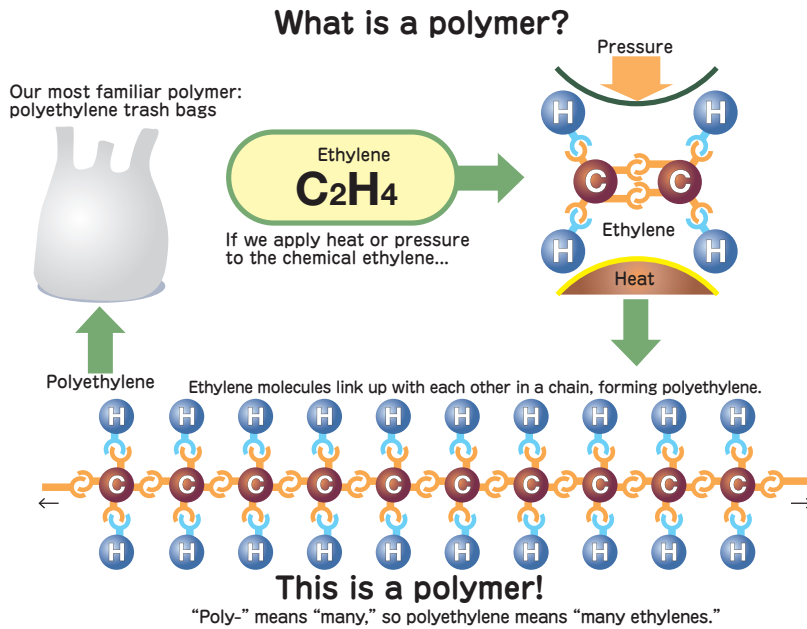
When the ozone treatment sterilizes, bleaches and deodorizes the used pulp, to what extent its quality is expected to be restored?

Study Note ②

Diaper recycling technology

Study Theme: How acid treatment restores super-absorbent polymer (SAP)?

① What is SAP?



How would you describe the structure of a polymer?

So, exactly what is SAP?

Its real name is sodium **poly**acrylate

That's a polymer of the chemical sodium acrylate

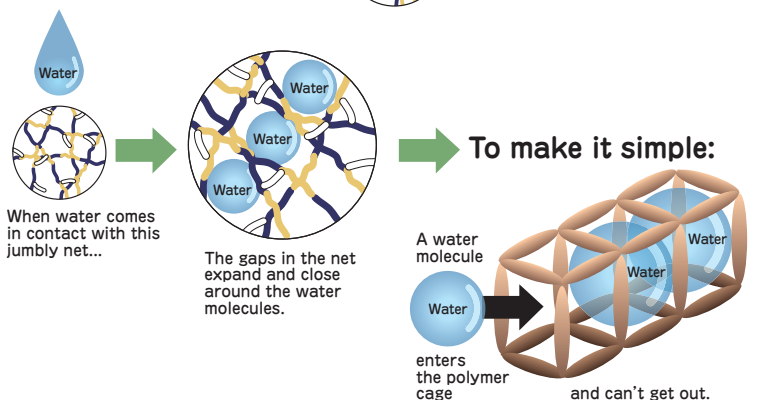
Ingredients:

- A Acrylic acid
- B Sodium acrylate
- C Molecule linking A and B (cross-linking monomer)

Net-like polymer made by mixing these 3 ingredients

The real network looks more jumbled up, like this!

How does super-absorbent polymer (SAP) trap water?



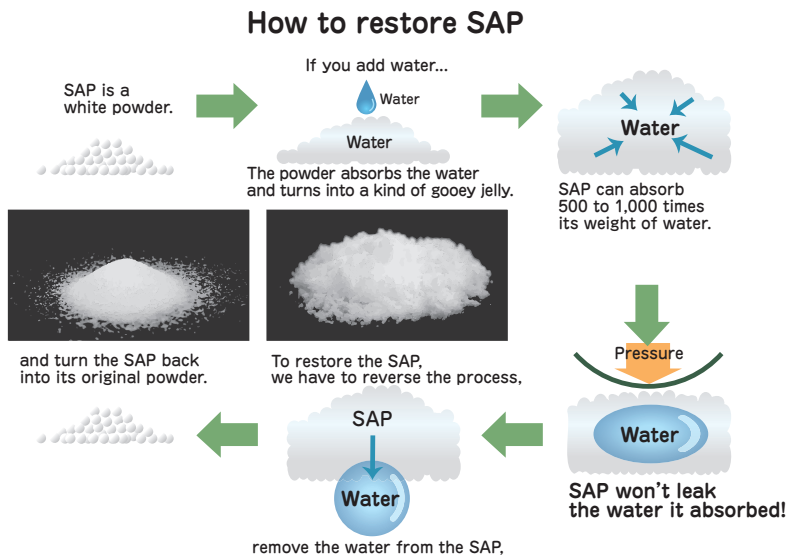
Use this space for describing what you have come to recognize or been interested in after reading the website.

Study Note ②

Diaper recycling technology

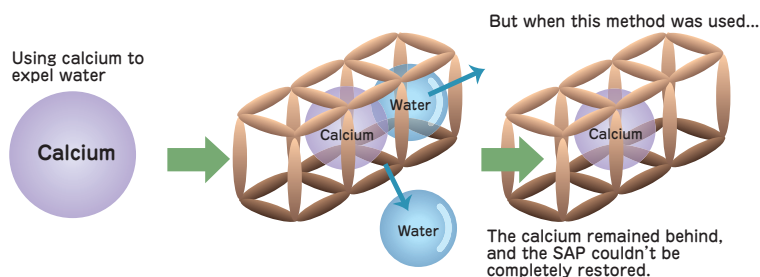
Study Theme: How acid treatment restores super-absorbent polymer (SAP)?

② Unicharm's SAP restoring technology



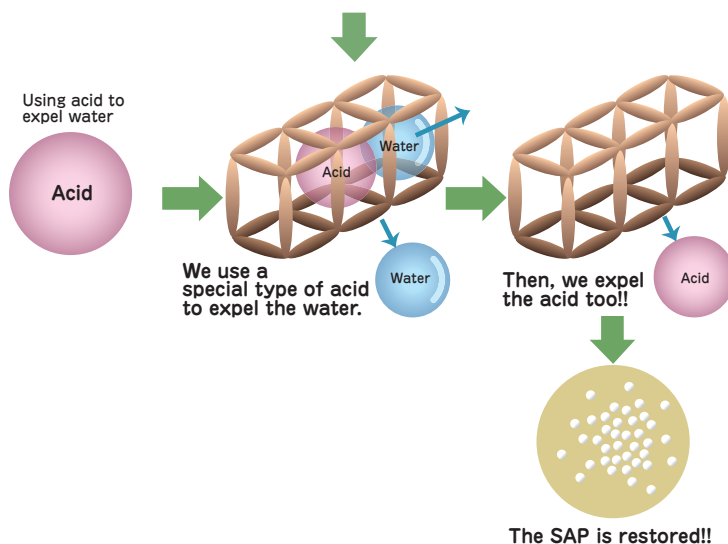
When SAP absorbs water, how is it hardened?

Why an earlier SAP restoration method didn't work



What are the differences between the new vs. current SAP restoration methods?

So Unicharm developed a new method!

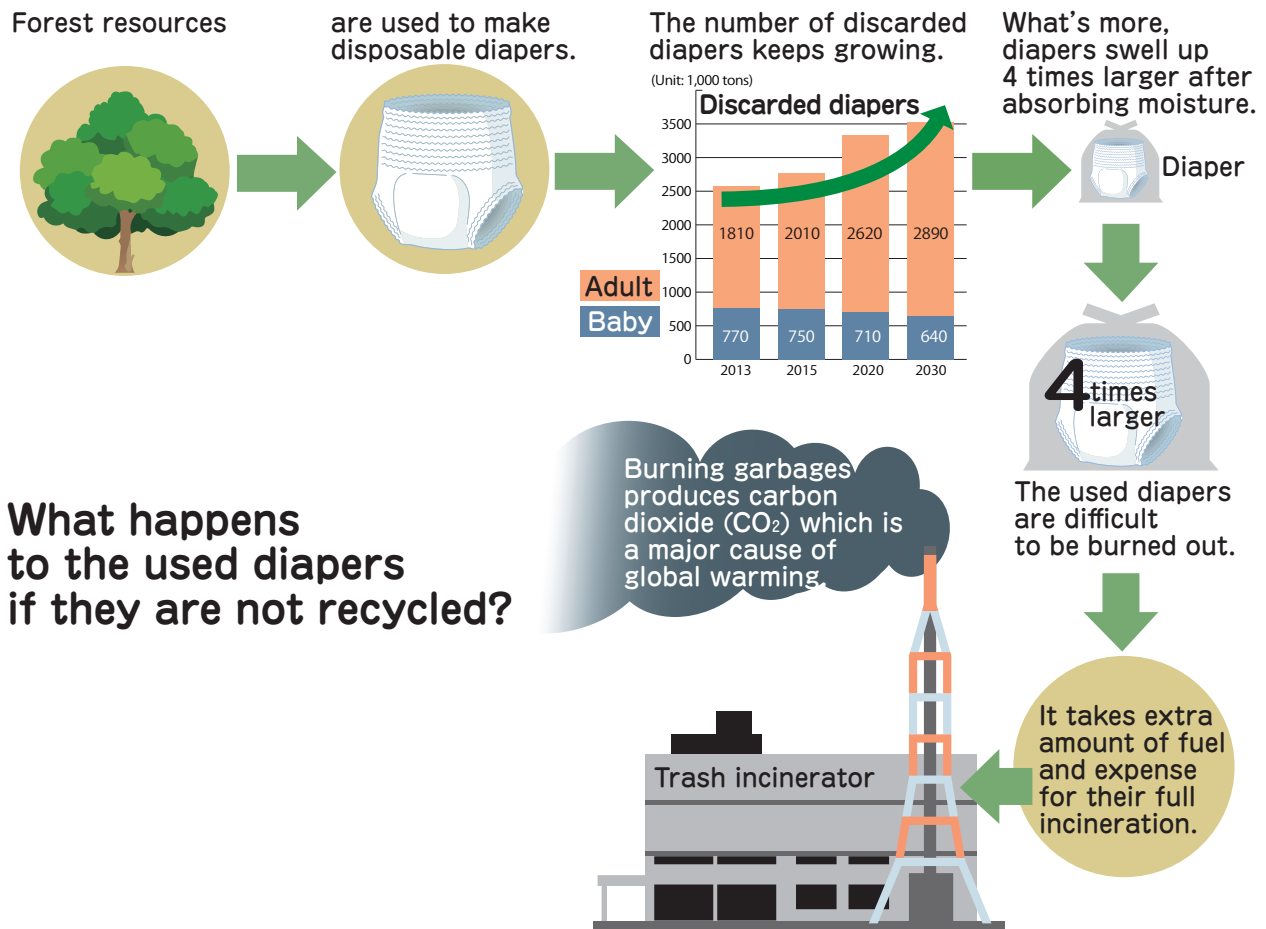


Use this space for describing what you have come to recognize or been interested in after reading the website.

Study Note ③

What happens to the used diapers if they are not recycled?

Study Theme: Problems with current ways of disposing used disposable diapers



What are the potential problems caused when burning the used disposable diapers?

Recycling used disposable diapers contributes to the United Nations Sustainable Development Goals (SDGs)



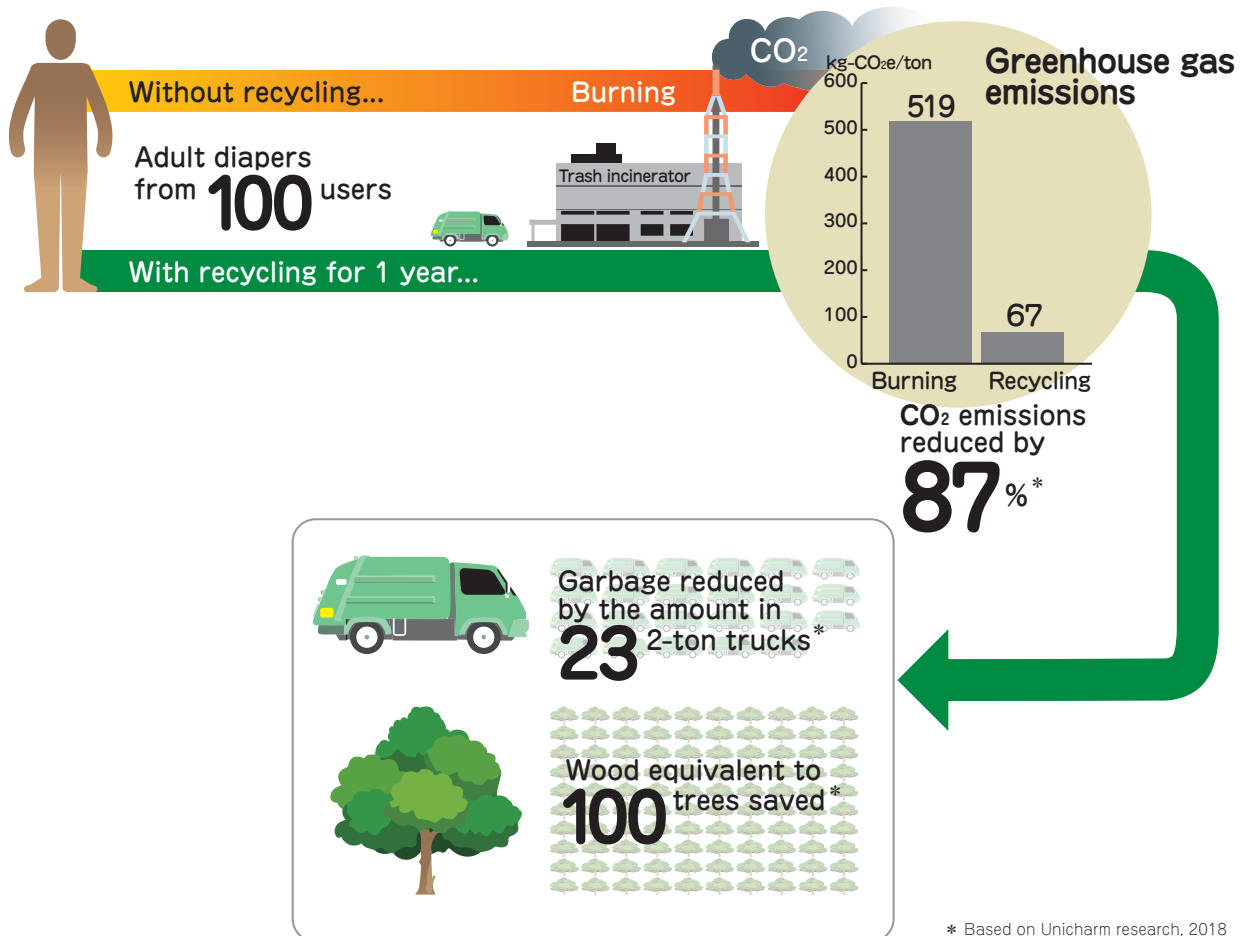
 **Going forward, what types of activities would you like to carry out to help achieve the SDGs?**

Use this space for describing what you have come to recognize or been interested in after reading the website.

Study Note ④

Safeguarding the global environment by recycling diapers

Study Theme: Benefits of recycling used disposable diapers

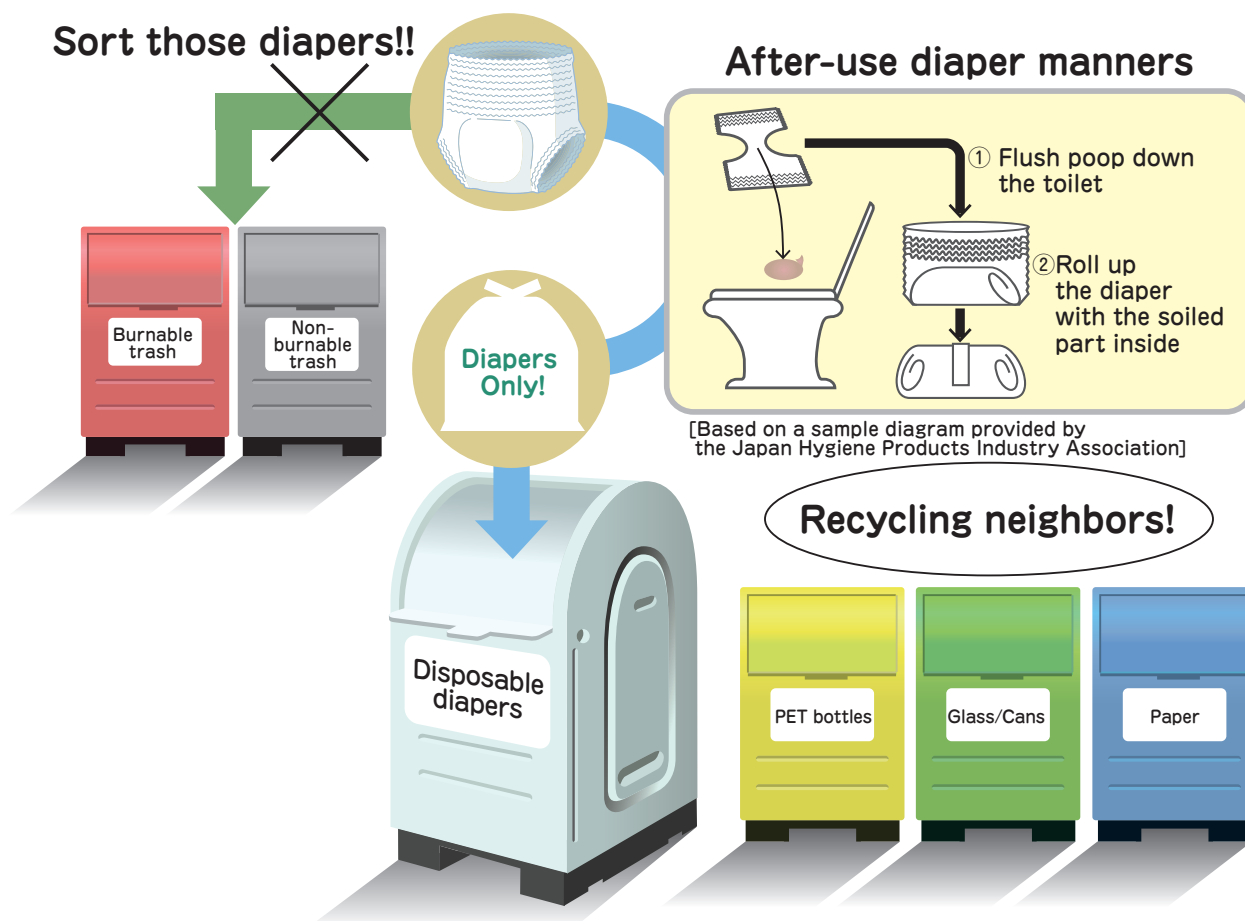


What are the 3 advantages of recycling the used disposable diapers?

Study Note ④

Safeguarding the global environment by recycling diapers

How can we keep used diapers out of the “garbage”?



✎ Try to find out the recycling initiatives your local community is working on.

Name of the city or town you reside in:

Method of disposing the used diapers your local community is carrying out:

Efforts and initiatives of recycling or others, if any, to help maintain and improve the environment in your local area:

- Efforts and initiatives in your prefecture, state or province:

- Efforts and initiatives in your city or town:

- Efforts and initiatives at your school: