

Star Festival tonight!

★ 今晚係星光節! ★



The Energy Heart stopped!

⚡ 能量之心停咗! ⚡

BLACKOUT!
大停電! ⚡



Before moonrise,
I'll bring the light back!

★ 月亮升起之前，
★ 我一定會帶返光明! ★



Pass through the three
carbohydrate gates!

闖過三道碳水化合物閘門!



1

MONO
GATE

MONOSACCHARIDES

單糖 = ONE / 一個

MONO
= ONE
單 = 1Glucose
葡萄糖Fructose
果糖Galactose
半乳糖

DISACCHARIDES

雙糖 = TWO / 兩個

DI
= TWO
雙 = 2Maltose
麥芽糖Sucrose
蔗糖Lactose
乳糖

3

POLY
GATE

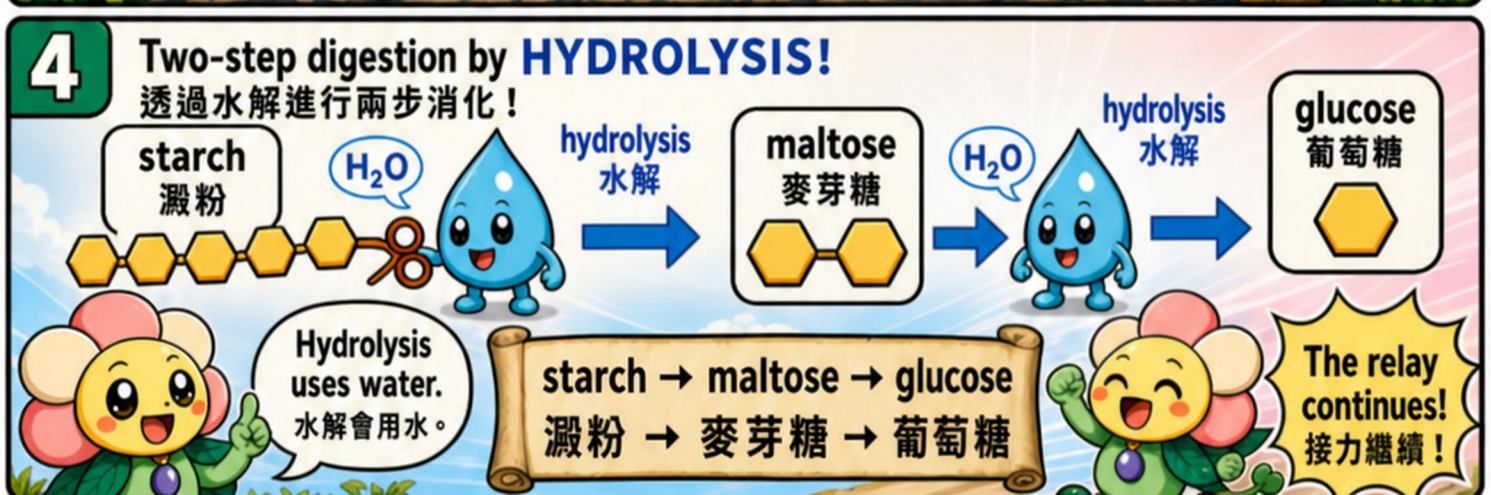
POLYSACCHARIDES

多糖 = MANY / 多個

POLY
= MANY
多 = MANYfrom potatoes
and grains /
來自馬鈴薯和穀物from plant cell walls /
來自植物細胞壁stored in liver
and muscles /
儲存在肝臟和肌肉

Three separate examples / 三種獨立例子

One, two, many—
the path is open!
一、二、多，
通道開啟！



1

Our energy
is running out!
我哋嘅能量快用完啦!



2

Animals store glycogen
in the liver and muscles.
動物會喺肝臟同肌肉
儲存肝糖。



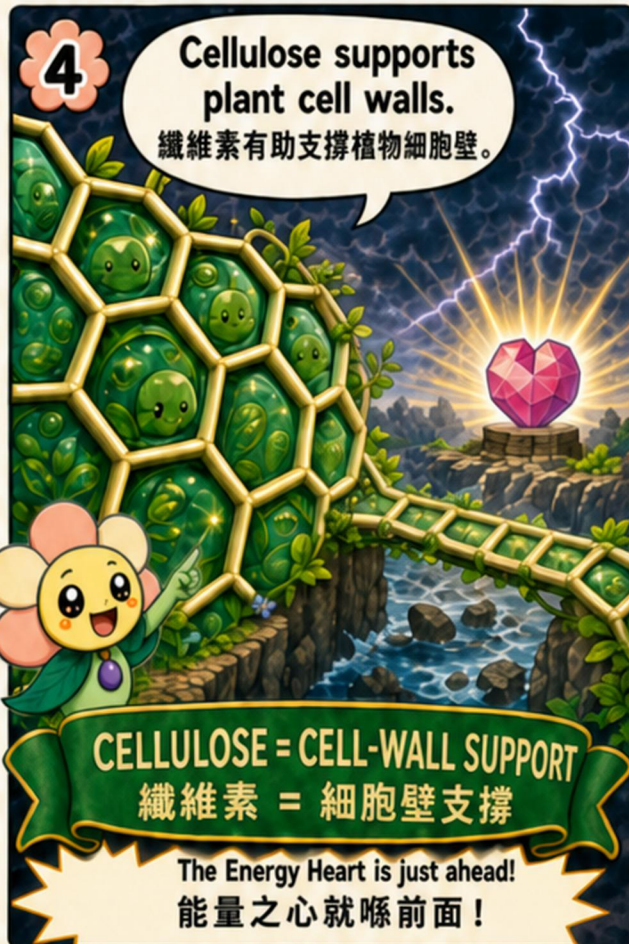
3

Glycogen hydrolysis
releases glucose.
肝糖水解會釋出葡萄糖。



4

Cellulose supports
plant cell walls.
纖維素有助支撐植物細胞壁。



Join together!
連埋一齊!



glucose
葡萄糖



glucose
葡萄糖

ENERGY HEART
能量之心

CONDENSATION / 縮合反應



glucose
葡萄糖

+



glucose
葡萄糖

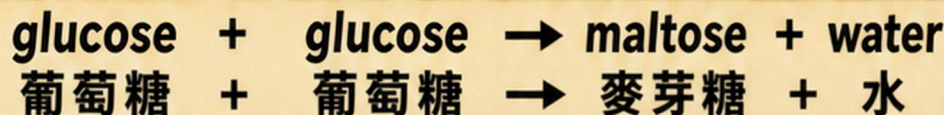


maltose
麥芽糖

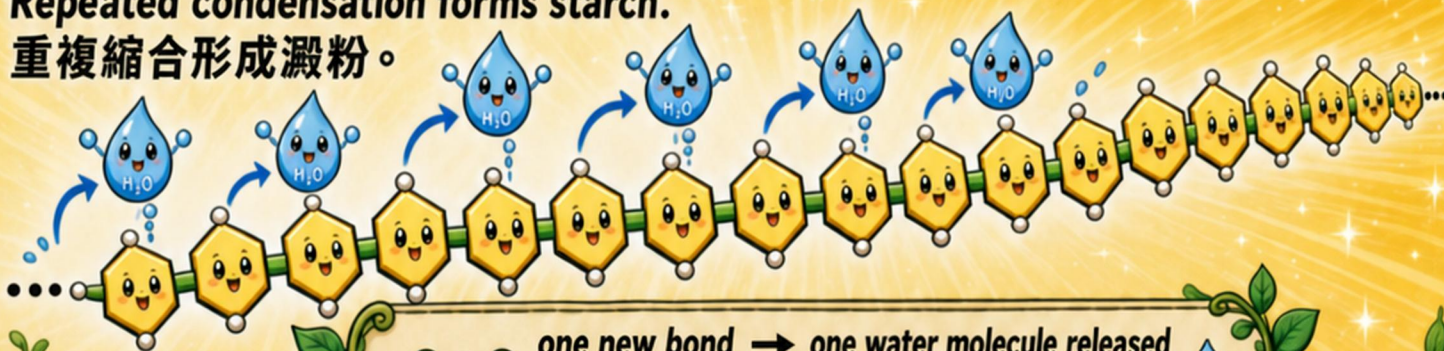


water
水

One bond forms;
one water molecule
is released.
形成一條鍵，
同時釋出一個
水分子。



Repeated condensation forms starch.
重複縮合形成澱粉。



one new bond → one water molecule released
形成一條新鍵 → 釋出一個水分子

FORM A GLYCOSIDIC BOND +
RELEASE WATER
形成糖苷鍵 + 釋出水

1

The maltose lock won't open!
麥芽糖鎖打唔開!

ENERGY
HEART
能量之心

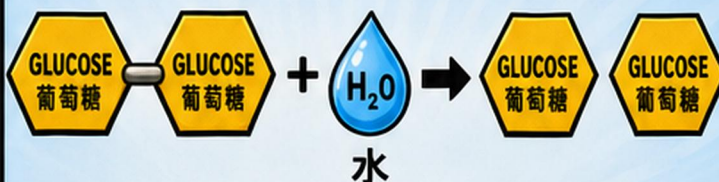
GLUCOSE 葡萄糖 — GLUCOSE 葡萄糖

MALTOSE LOCK
麥芽糖鎖

I can help!
等我幫手!

2

HYDROLYSIS / 水解反應



maltose + water → glucose + glucose
麥芽糖 + 水 → 葡萄糖 + 葡萄糖

One water molecule breaks one glycosidic bond.
一個水分子斷開一條糖苷鍵。



BREAK A GLYCOSIDIC BOND
+ USE WATER
斷開糖苷鍵 + 使用水

3

The Energy Heart is free!
能量之心重獲自由!

GLUCOSE 葡萄糖 — GLUCOSE 葡萄糖

You brought
the light back!
你帶返光明啦!

4

STAR FESTIVAL
星光節

Carbohydrates
provide energy, store
energy, and support
plant cells.
碳水化合物可以供應能量、
儲存能量，亦可以支撐
植物細胞。

MONO = ONE
單 = 一



DI = TWO
雙 = 二



POLY = MANY
多 = 多



CONDENSATION: FORM A BOND + RELEASE WATER
縮合反應：成鍵 + 釋水



HYDROLYSIS: BREAK A BOND + USE WATER
水解反應：斷鍵 +

