

# 3

## 人类



主题二 生命科学

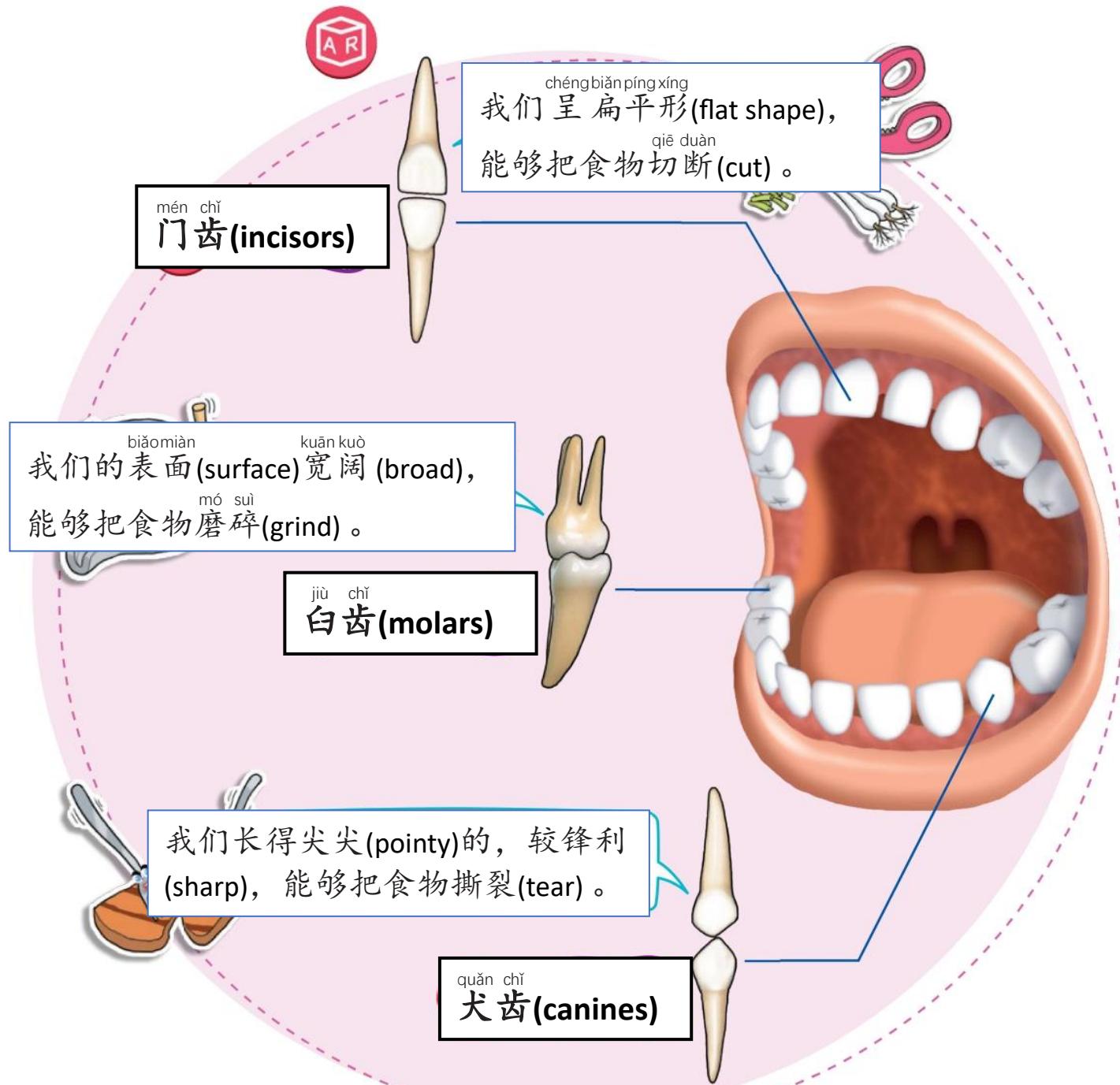


### 给老师的话

- 通过引导学生说出婴儿的粥需搅碎的原因，初步带出牙齿的功能。
- 让学生观察上图，说出图中人物的饮食是否均衡及我们需要刷牙的原因。

# 牙齿的种类及其功能 Types of teeth & Their Functions

我们的上下两排牙齿都有门齿、白齿和犬齿。  
不同种类的牙齿有不同的功能。



## 给老师的话



3.1.1

- 引导学生理解上下两排的牙齿必须共同合作, 才能发挥它们的功能。
- 认识门齿、白齿和犬齿的形状, 能帮助学生了解这些牙齿的功能。教师也可准备三种适合的工具来向学生分别模拟切断、磨碎、撕裂食物, 以让学生更容易了解门齿、白齿、犬齿的功能。
- 牙齿除了有上述功能外, 还能帮助人类发音和让面部显得丰满、美观。

# Types of Teeth and Their Functions

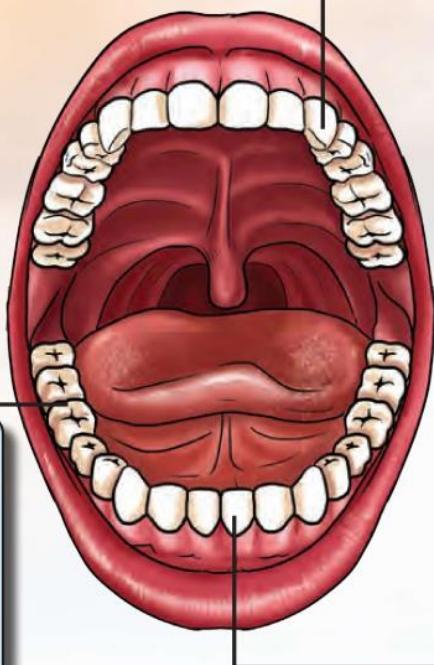
We have three types of teeth. Let us find out about these teeth and their functions.



**molars**



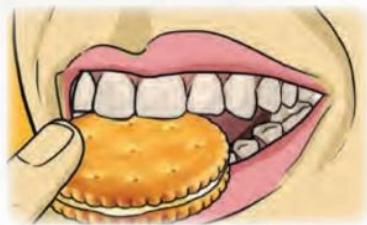
**Function:**  
to grind food



**canines**



**Function:**  
to tear food



**incisors**



**Function:**  
to cut food

## Let's Get to Know Our Teeth Song

Our incisors to chop and cut,  
Our canines to tear apart,  
Our molars to grind the food,  
We use all of them to chew our food.

Every little tooth helps us to talk,  
And make our smile so cute and sweet,  
These are the functions of our teeth.

(To the tune of *Papaku Pulang*)

Ngap, ngap, ngap, ngap, ngap,  
Ngap, ngap, ngap, ngap

Based on the song above, describe the types of teeth and their functions.



3.1.1

## 3

yá chǐ de gòu zào

## 牙齿的构造 Structure of a Tooth

使用镜子来观察自己的牙齿，我们所能看到的只是牙齿的表面。牙齿的内部构造是怎样的？一起来看看吧！ TP 3

yóu zhì  
釉质(enamel) — 牙齿的最外层  
(outer layer), 很坚硬(strong)。

yá běn zhí  
牙本质(dentine) — 是构成牙齿的主要部分。

yá yín  
牙龈(gum) — 环绕(surrounding)  
牙齿的基部(base)。

shén jīng  
神经(nerve) — 让我们感觉到冷, 热或疼痛(pain)。

xuè guǎn  
血管(blood vessels) — 为牙齿提供所需的营养(nutrition)。



釉(yóu)质是人体最坚硬的组织。但釉质无法自行修复, 所以当它因蛀牙而形成空洞时, 就需要请牙医来填补空洞。



## 给老师的话

可准备牙齿构造的模型、挂图或视频来进行教学, 以让学生能更清楚地看到牙齿的各个构造。

活动本  
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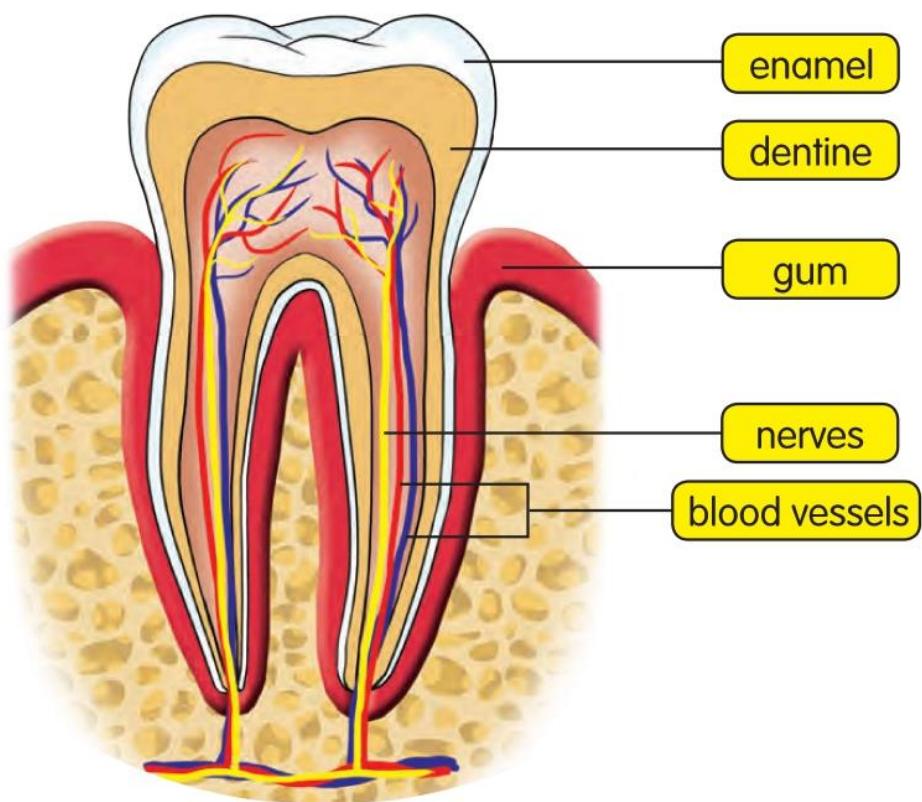
# Structure of a Tooth

Aishah is observing her teeth in a mirror.



If we take a cross section of a tooth, what can we observe?  
Let us look at the structure of a tooth below.

**Cross Section of a Tooth**



# 乳牙与恒牙 Milk Teeth & Permanent Teeth

我们出生后长出的牙齿叫作乳牙。随着年龄的增长，乳牙会脱落，换成恒牙。



大约6个月大时，  
婴儿开始长出乳牙。

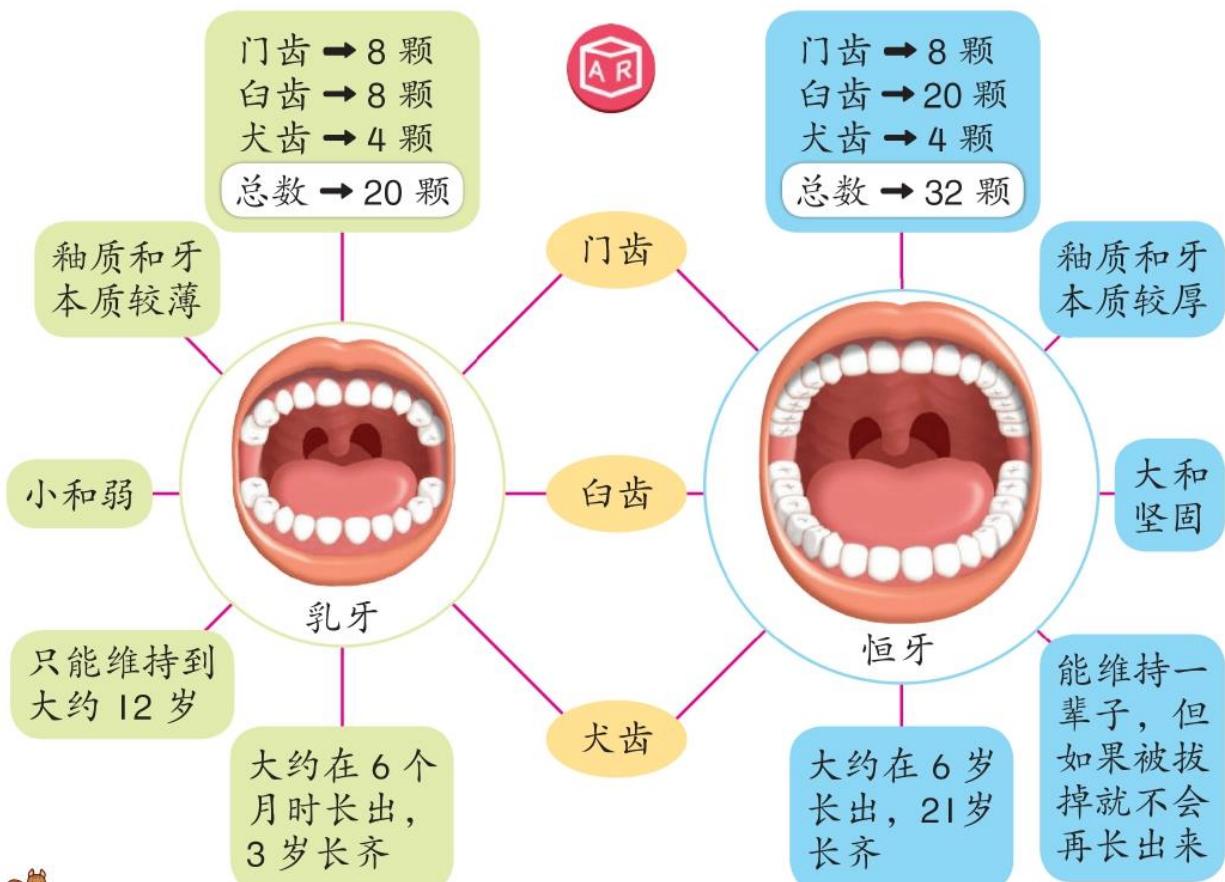


大约6岁，乳牙  
逐渐脱落。



大约12岁，乳牙  
完全被恒牙取代。

## 乳牙与恒牙有什么区别？



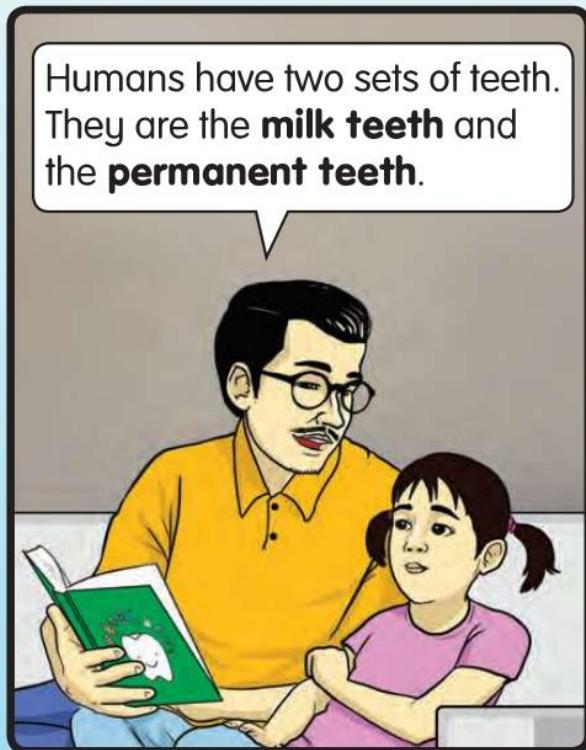
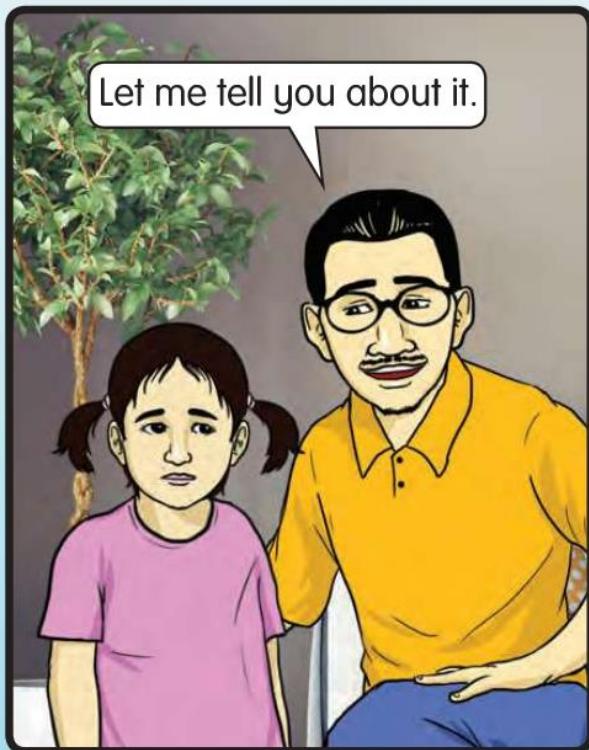
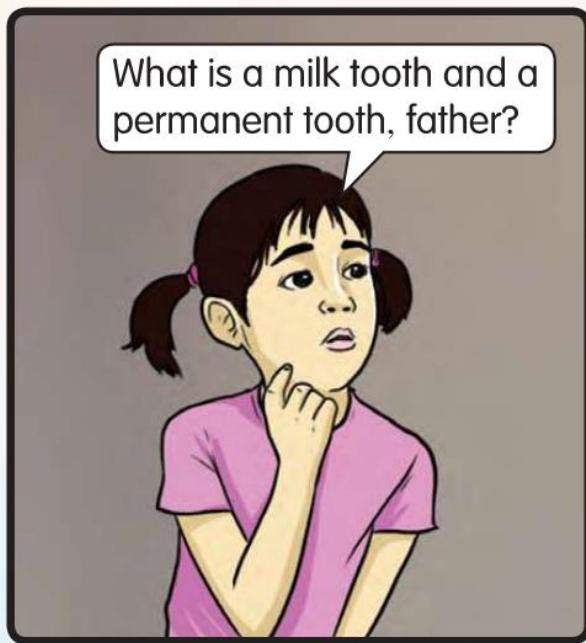
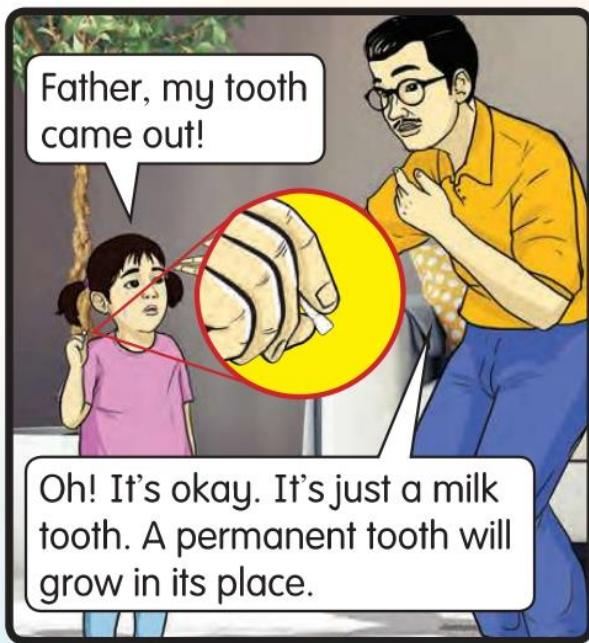
给老师的话

让学生知道，换牙是每个小朋友都会经历的过程。鼓励学生分享自己换牙的经验。

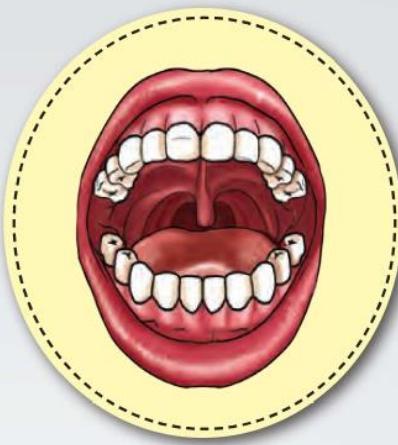
活动本  
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# Milk Teeth and Permanent Teeth

Let us observe the situation below.



# Milk Teeth Set and Permanent Teeth Set



## Milk Teeth Set

There are 20 teeth, which are:

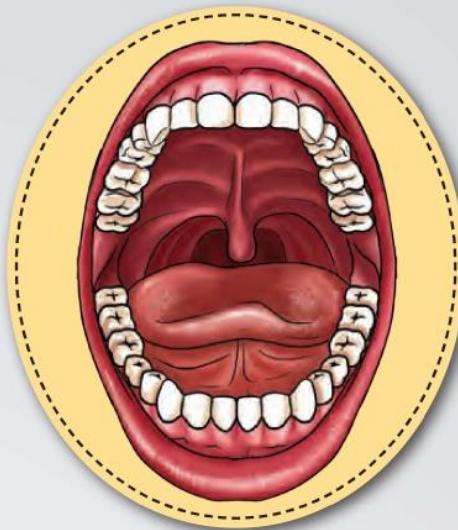
- 8 incisors
- 4 canines
- 8 molars

Thin layers of enamel and dentine.

Teeth are smaller and not strong.

Teeth are not permanent and have a short life span.

Milk teeth start to grow at 6 months old and are complete at 3 years old.



## Permanent Teeth Set

There are 32 teeth, which are:

- 8 incisors
- 4 canines
- 20 molars

Thick layers of enamel and dentine.

Teeth are bigger and stronger.

Teeth are permanent and have a long life span.

Permanent teeth start to grow at 6 years old and are complete at 21 years old.

Both sets have the same types of teeth, which are incisors, canines, and molars.



Activity Book  
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KPM



<http://syazalina83.blogspot.com>

bǎo hù yá chǐ

### 3 保护牙齿 Dental Care

为了使牙齿的构造不被破坏，我们在生活中应该怎么做？



护牙有绝招！



一天至少刷两次牙。



用牙线清洁牙缝。



饮食之后要漱口。



这些方法是为了清除食物残渣。

如果牙齿出现问题，有哪些技术能治疗牙齿？

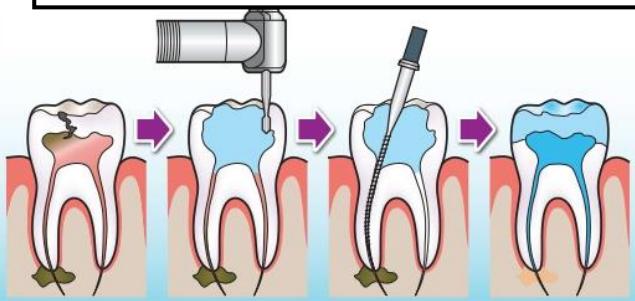
bǔ yá  
补牙 (fillings)



能修补缺损的牙齿。

gēn guǎn zhì liáo

根管治疗 (root canal treatment)



能治疗受损情况严重的牙齿。



少吃甜食，少喝甜饮。



多吃对牙齿有益的食物。



定期让牙医检查牙齿。

如果恒牙蛀了而需要拔掉，就不会再长出新牙，因此要好好地照顾牙齿。



jiǎ yá  
假牙 (dentures)



能代替被拔掉的恒牙。

yá chǐ jiū zhèng  
牙齿纠正 (braces)



戴牙套能矫正牙齿，改善外观。



### 给老师的话

3.1.4  
3.1.5

可让学生观看以下有关补牙的视频：<https://goo.gl/5R8qJn>。

鼓励学生分享家人通过以上技术来治疗牙齿的经验。

活动本  
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# Dental Care

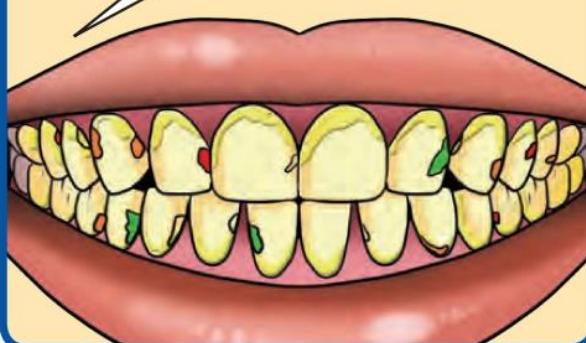
Lim and his brother have just finished their lunch.

Why do you rinse your mouth after eating?



We can remove food that is stuck between the teeth by rinsing our mouth.

Why do we have to remove food that is stuck between the teeth?



If we don't remove it, germs will multiply and cause the teeth to decay.



Brushing and flossing your teeth will also remove food that is stuck between the teeth.  
Let me show you.



We brush every surface of our teeth with toothpaste. Brush your teeth at least twice a day.



3.1.4



To floss your teeth, put the floss between your teeth and move it back and forth repeatedly to remove the food that is stuck.



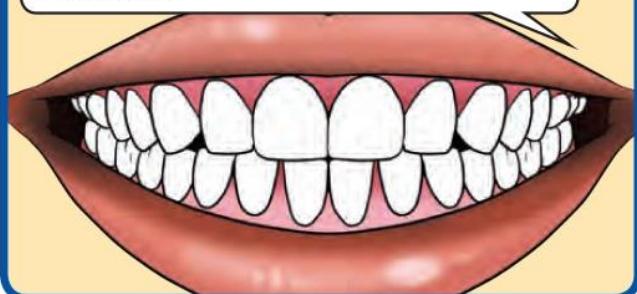
We should go to the dentist for a check-up once every six months.



If you always eat sweet food and don't clean your teeth, the teeth will decay.



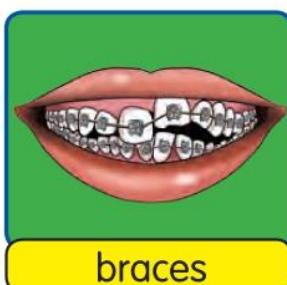
If we practise good dental care, our teeth will be healthy and beautiful.



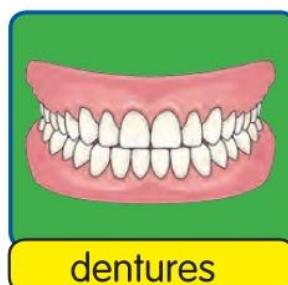
Why is daily dental care important to us? Can you explain?  
There are many dental care technologies that are available, such as:



fillings



braces



dentures



root canal treatment

Find out more about these technologies and present them creatively to the class.

yíng yāng sù

# 营养素 Nutrients

## 营养素的重要性

我们每天都会吃各种各样的食物。说一说，你今天吃过了哪些食物？ TP I

我们所吃的含有营养素。  
食物里含有哪些营养素？



dàn bái zhì  
蛋白质 (protein)

tàn shuǐ huà hé wù  
碳水化合物  
(carbohydrates)

zhī fáng  
脂肪 (fats)

营养素

水

wéi shēng sù  
维生素 (vitamins)

shàn shí xiān wéi  
膳食纤维 (fibre)

kuàng wù zhì  
矿物质 (minerals)



试举出各营养素的食物例子。



给老师的话

可让学生回忆并记录他们前一天的三餐所吃过的食物。鼓励学生说出他们吃这些食物的原因。

3.2.1  
3.2.5

# 营养素对人体的重要性。



## 给老师的话

可让学生知道不是每一种食物中的脂肪都会对人带来害处；有些食物的脂肪是肉眼看不见的，如瘦肉和花生。

活动本  
第21至  
23页

# 均衡的饮食 A Balanced Diet



健康又均衡的饮食须涵盖各营养素。食物金字塔是引导我们吃得健康和均衡的指南。



来源：马来西亚卫生部  
(Kementerian Kesihatan Malaysia)

由我国卫生部所推广的“健康餐盘”指导我们在一餐中各类食物应吃的分量。



bù jūn héng de yǐn shí

# 不均衡的饮食 An Imbalanced Diet



启华的午餐有达到饮食均衡吗？与组员讨论，没有按照食物金字塔来饮食会造成什么后果。为什么？



饮食不均衡



导致各种健康问题



饮食不均衡会导致各种健康问题，所以我们应按照食物金字塔来计划每日的饮食。



## 知识在线

浏览以下网页，了解长期饮食不均衡所带来的健康问题。

<https://goo.gl/sT8afK>



## 给老师的话

- 让各组学生轮流在班上与其他同学分享他们在活动7中的讨论结果。
- 可让学生知道饮食不均衡所会导致的其他健康问题，如高血压、高胆固醇、营养不良等。

活动本  
第25页

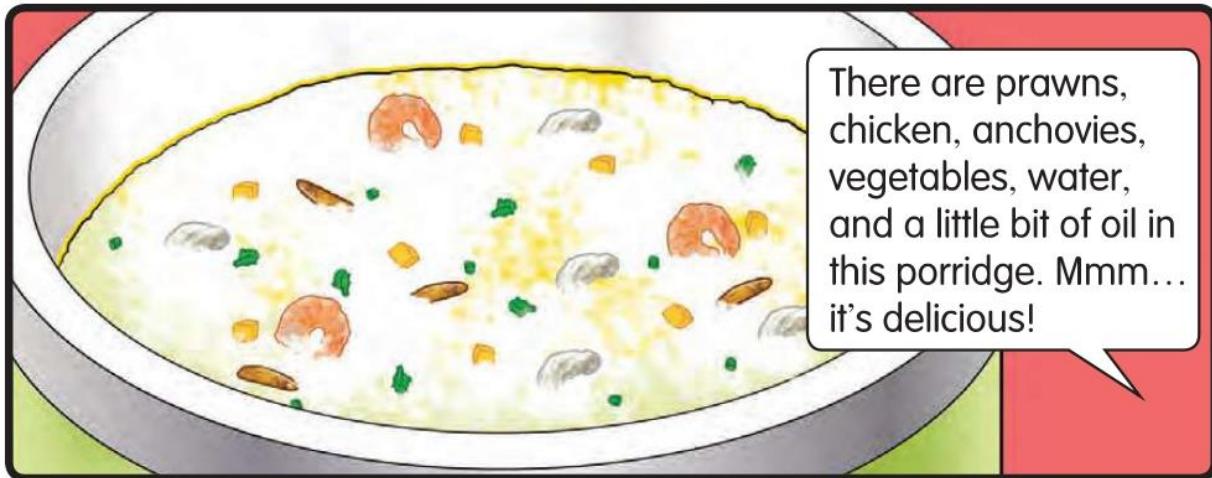
# Classes of Food

Food can be classified into seven groups which are carbohydrate, protein, fats, minerals, vitamins, fibre, and water.



Can you give other examples for each class of food?





Each class of food is important for our bodies as it helps us to stay healthy.

## THE IMPORTANCE OF FOOD

### Protein



For growth

### Carbohydrate



Provides energy

### Vitamins



Keep us healthy

### Minerals



Keep us healthy

### Fats



Warm the body

### Water



Regulates body temperature

### Fibre



Prevents constipation

How does the porridge help Rani to get well again? Explain.

Activity Book  
Pages:

27-29



# A Balanced Diet

How can we make sure that the meal we eat is balanced?

We can make sure that the meal we eat is balanced by following the Malaysian Food Pyramid.



## Malaysian Food Pyramid

### Level 4: Eat Less

(fat, oil, salt, and sugar)



### Level 3: Eat in Moderation

(fish, poultry, meat, legumes, milk, and dairy products)



### Level 2: Eat Plenty

(fruits and vegetables)

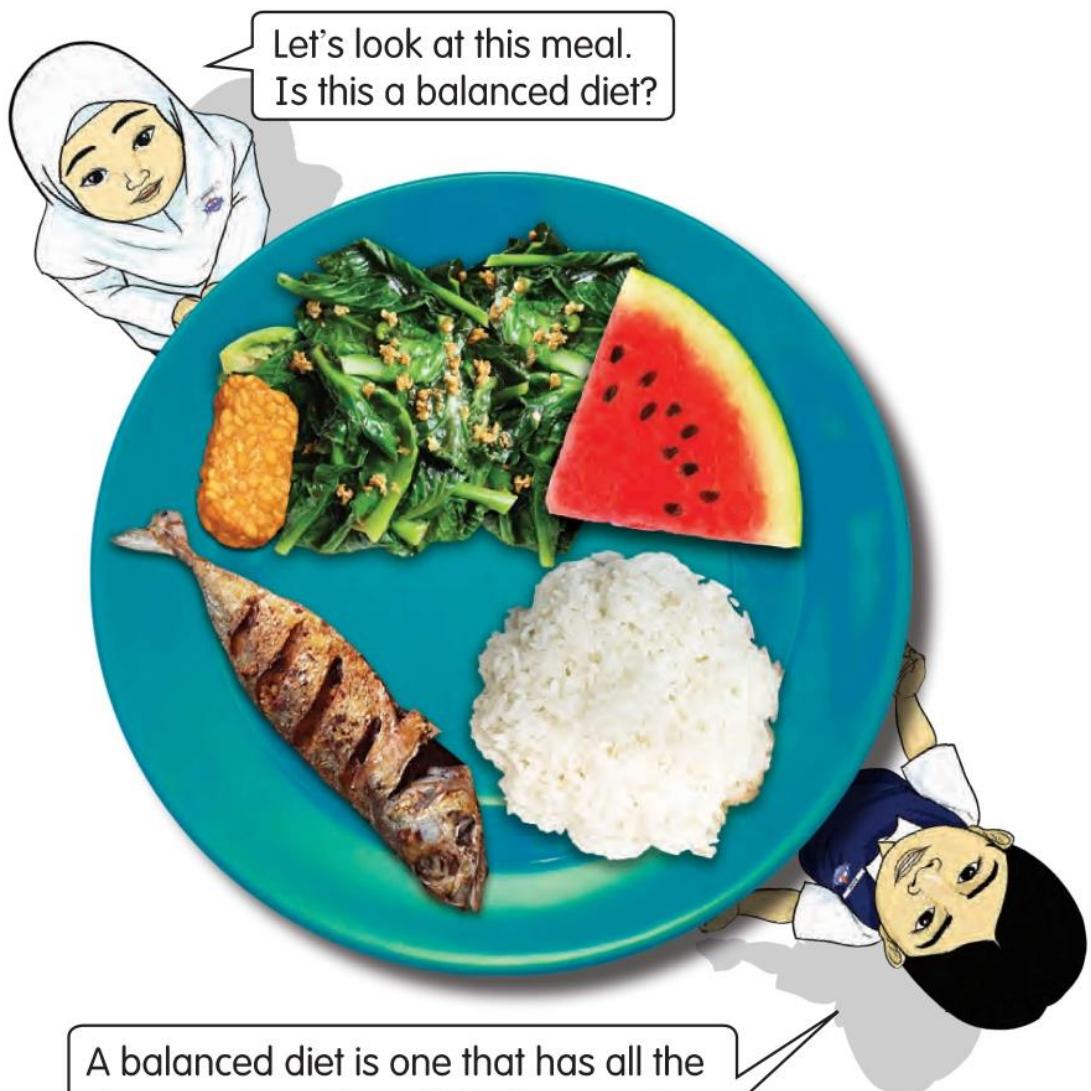


### Level 1: Eat Adequately

(rice, noodles, cereal, cereal products, and tubers)



(Source: Ministry of Health Malaysia)



A teacher with glasses and a mustache, wearing a yellow shirt and red tie, stands in front of a chalkboard. A speech bubble from him says, "Based on the Malaysian Food Pyramid, plan a balanced meal and explain it." A small name tag on his shirt reads "ADAM".

TEACHER'S NOTES

- The consumption of a balanced diet depends on gender, age, size of body, environment, level of health, and physical activity.

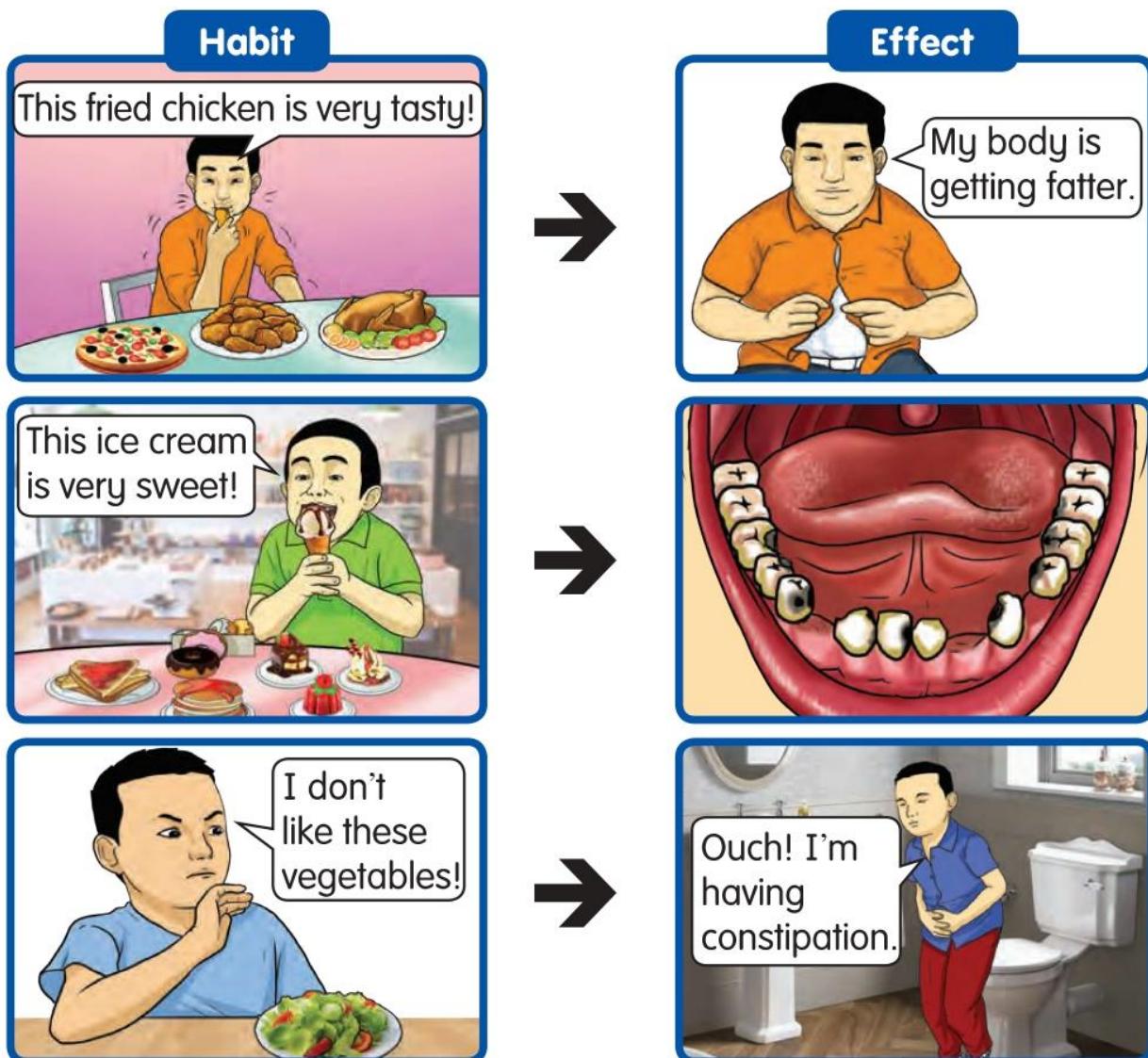
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KPM

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# The Effects of an Imbalanced Diet

Observe the situations below.



What are the effects of an imbalanced diet on the people who do not eat properly in the situations above?

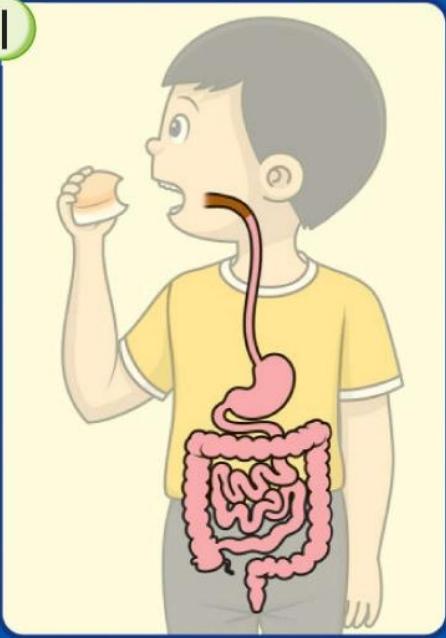
Eating imbalanced meals can cause health problems. Therefore, we should plan the food we are going to eat based on the Malaysian Food Pyramid.



## 消化 The Digestion Process

食物进入口腔后，漫长的消化旅途便开始了。这一切是怎么发生的？一起来看一看。

1



kǒu qiāng

**口腔 (mouth)** – 当食物进入口腔，牙齿把食物弄碎。舌头(tongue)会搅拌食物，使食物与唾液(saliva)混合，变成糊状(paste-like)，让我们容易吞咽(swallow)。

4



xiǎo cháng

**小肠 (intestines)** – 糊状的食物来到小肠。小肠把食物分解(break down)得更加小，食物中的营养素(nutrients)被吸收(absorbed)。

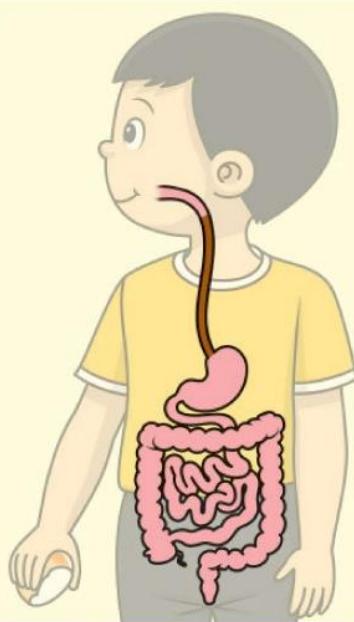
5



dà cháng

**大肠 (intestine)和肛门 (anus)** – 大肠把食物中的水分吸收，剩下残渣(waste)形成粪便(faeces)，通过肛门排出。

2



shí dào 食道 (oesophagus) – 当我们吞咽 (swallow) 时, 食物会被推至食道。

3



wèi 胃 (stomach) – 食道将食物推进胃里。胃液 (gastric juice) 把食物分解成黏稠的糊状 (sticky and paste-like).



通过活动 9 及第 42 页和 43 页的课文, 我发现食物被消化后会…… TP 4

我认为消化是…… TP 5



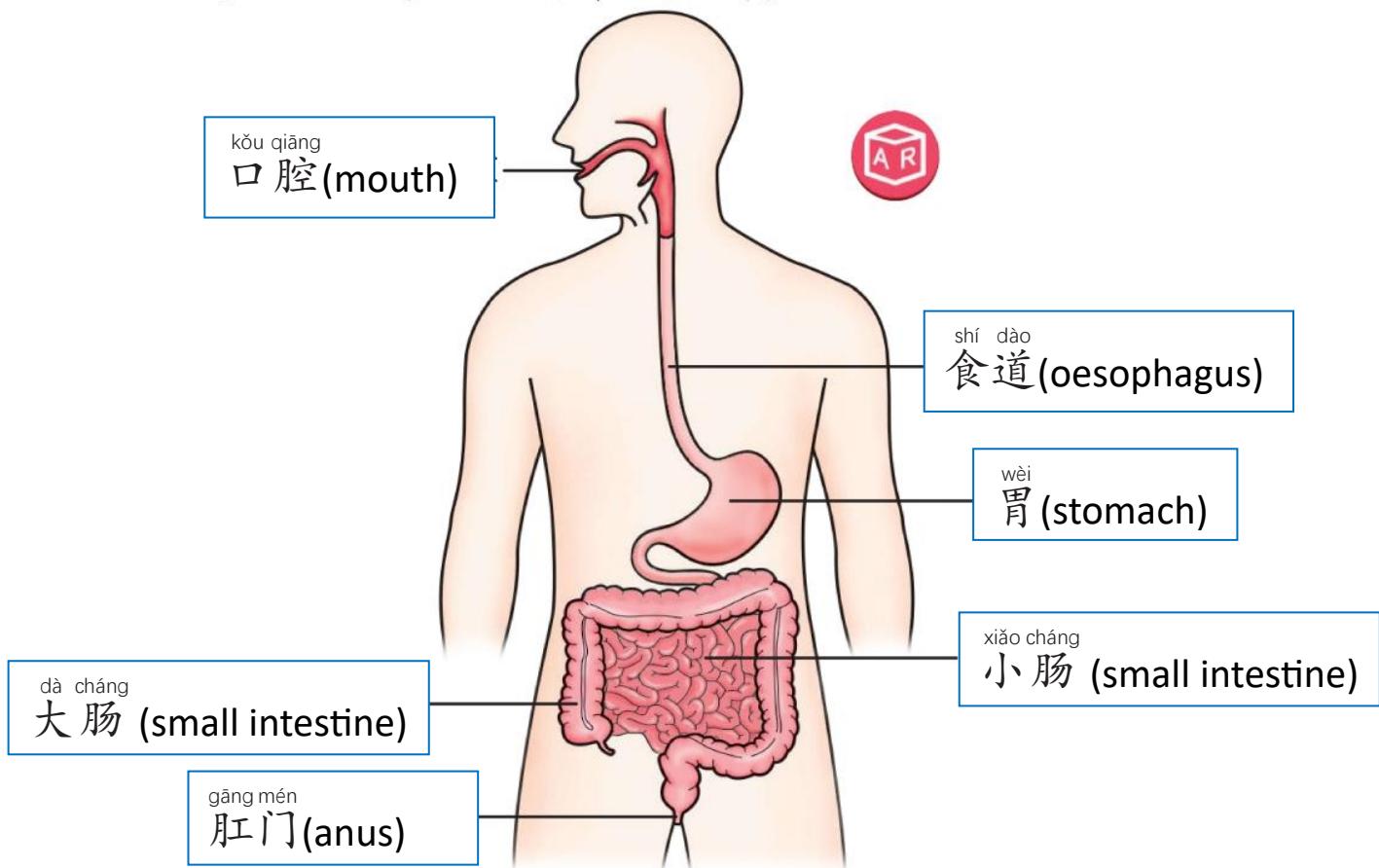
### 给老师的话



- 3.3.1 引导学生通过第 42 页和 43 页的课文, 了解食物的消化过程。
- 3.3.2 让学生知道, 各个消化器官需要共同合作, 食物的消化过程才能顺利进行。
- 3.3.3 引导学生根据活动和课文作出概括: 食物被消化后, 小肠会吸收食物中身体所需的营养素; 大肠把食物中的水分吸收, 不被身体所需的食物残渣形成粪便, 通过肛门排出。

活动本  
第 27 和  
28 页

消化是将食物分解得更加小，然后再吸收其营养素。食物的消化经由口腔、食道、胃、小肠、大肠和肛门来完成。



### 动动脑袋瓜

把绳子剪成大约6米。看，这就是我们的小肠的长度！小肠是整个消化道中最长的一段。想一想，为什么小肠需要这么长？



### 知识在线

你知道我们所吃的食物大约要多久才会变成粪便排出体外吗？观看视频，一起来了解吧！  
<https://goo.gl/GbMEHh>



### 给老师的话

教师可利用上图或准备立体模型来帮助学生巩固有关食物消化的知识。

活动本  
第29页



干扰食物消化



吃东西时，避免说话、跑动和跳跃，也不要吃得太快，以免影响消化。



3.3.4

### 给老师的话

引导学生理解以上各个行为如何干扰食物的消化。

提问学生自己或者家人是否曾有以上的经验，鼓励学生与同学分享有关的经验。通过同学们的分享，提醒学生在吃东西时要有良好的行为。

# The Digestion Process

An evening in Rani's kitchen.

This is so tasty! How does this hard biscuit become soft enough for me to swallow?

I've been broken down into small pieces by the teeth. The tongue and saliva make me soft and easy to be swallowed.

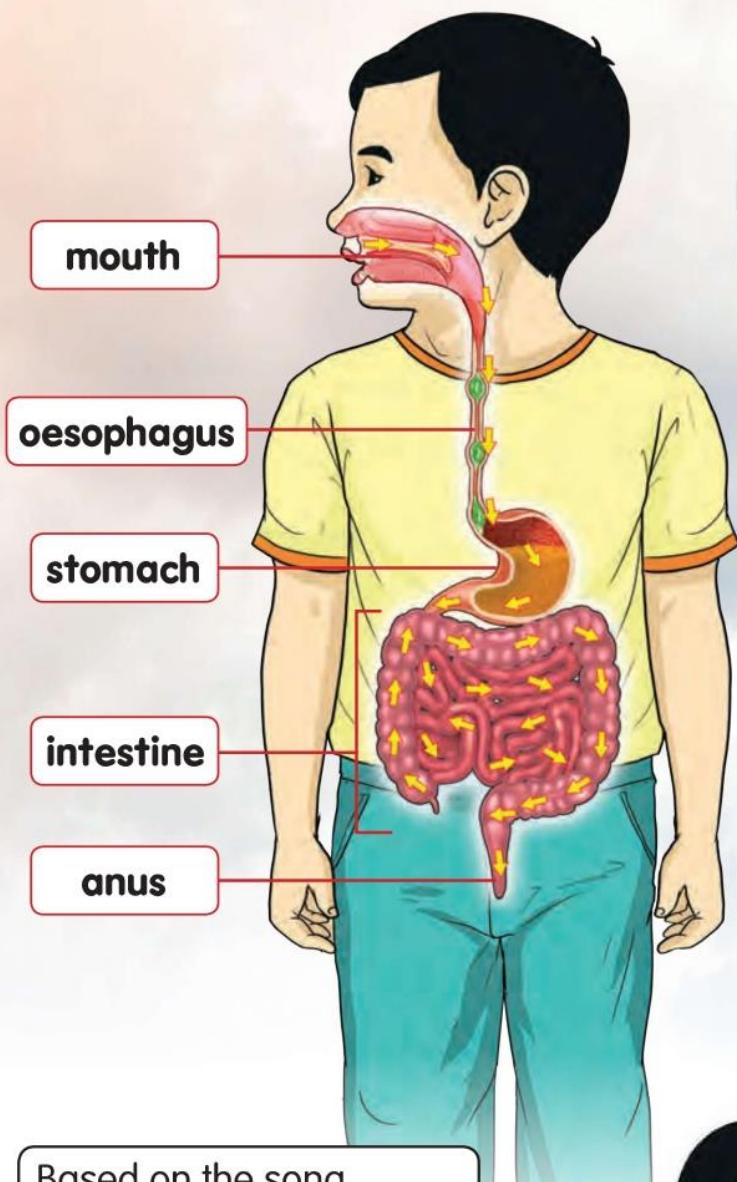
How is food broken down in our mouths?

3.3.1



# The Flow of Food

The food that we eat will go through several parts of our body. Look at the diagram below.



Based on the song above, state the flow of food during the digestion process.

## Digestion Process Song

The digestion process,  
Starts from the mouth,  
We use our tongue and teeth,  
And saliva too.

Chew and grind the food,  
Until we can swallow,  
Go through the oesophagus,  
And to the stomach it goes.

From the stomach it slides,  
Through the intestine,  
And undigested food,  
Exits through the anus.

(To the tune of  
*Anak Itik Tok Wi*)



# Food Digestion

Let us continue the story about the grape that changed shape after being chewed and swallowed.

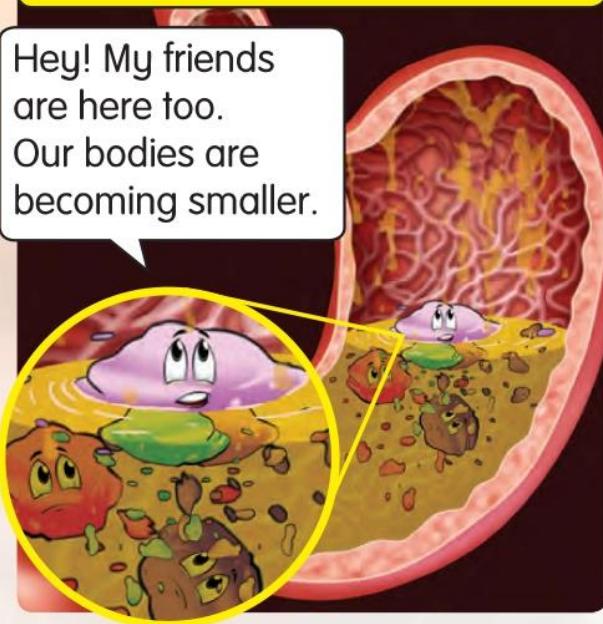
## In the oesophagus

This passage is very narrow. Where will I be taken next?



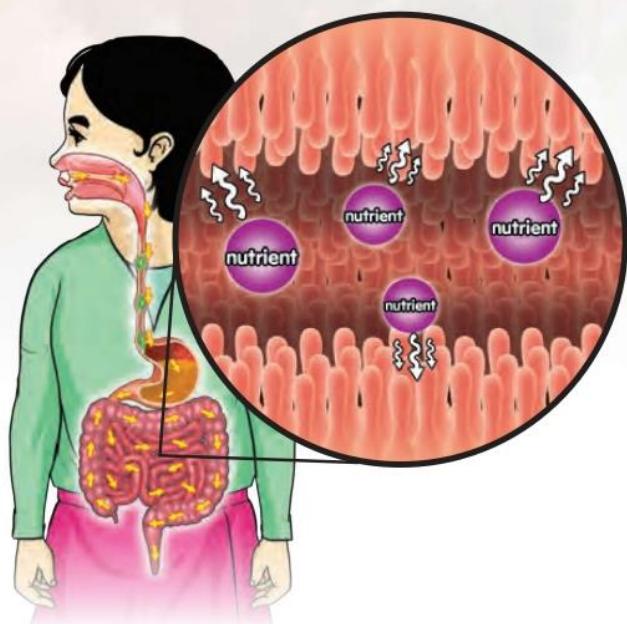
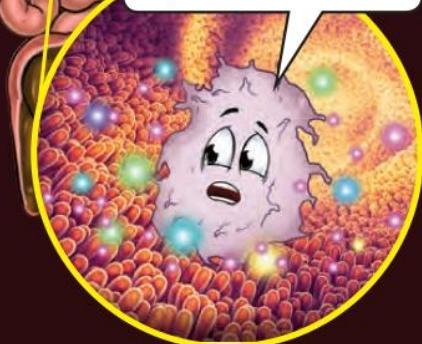
## In the stomach

Hey! My friends are here too. Our bodies are becoming smaller.



## In the intestine

Our nutrients are being absorbed by the intestine!



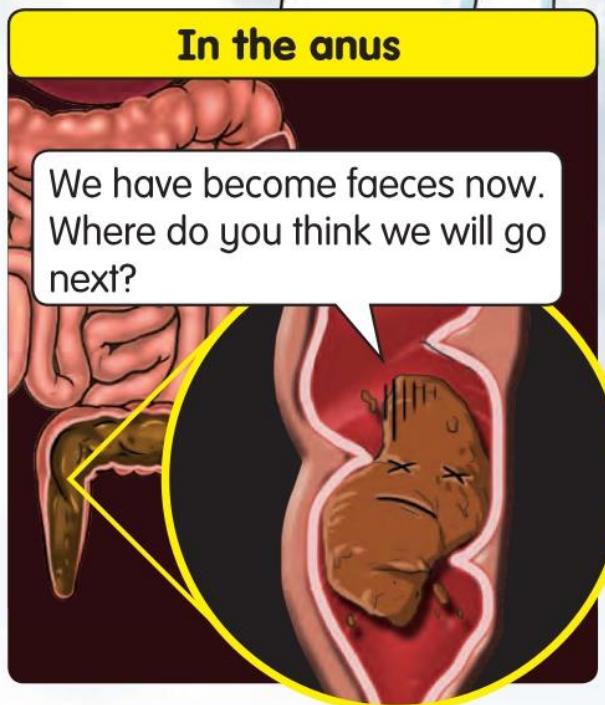
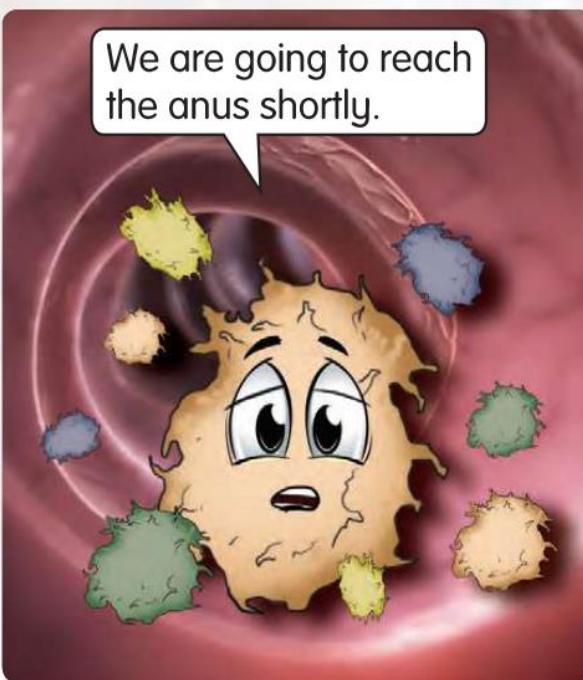
What happens to the grape and the other food?

3.3.1  
3.3.3

Will all the digested food in the food flow be absorbed by the body?



Let us continue with the story.



What is your conclusion about the situation of the food that was eaten in the story?

**Digestion** is a process of breaking down food into smaller pieces so that its **nutrients** can be absorbed while moving through the food flow in the body.

**TEACHER'S NOTES**

- Faeces is also known as stool.

Activity Book  
Pages:

33, 35

# Actions that Disrupt Digestion

Observe the situations below.



Can you describe the actions and their effects on the digestion process based on the situations above?



# 我学会了什么?



## 牙齿

### 种类与功能

门齿

切断  
食物



白齿

磨碎  
食物



犬齿

撕裂  
食物



### 构造

釉质

牙本质

牙龈

血管

神经



### 乳牙与恒牙

乳牙



釉质和牙本质较薄；小而弱；共 20 颗；大约在 6 个月时长出，3岁长齐；大约 6 岁逐渐脱落；能维持到大约 12 岁。

恒牙



釉质和牙本质较厚；大而坚固；共 32 颗；大约在 6 岁长出，21 岁长齐；能维持一辈子，但被拔掉就不会再长出来。



yá kē zhì liáo jì shù      bǔ yá      gēn guǎn zhì liáo      jiǎ yá hé yá chǐ jiǎo  
牙科治疗技术：补牙、根管治疗、假牙和牙齿矫  
正。

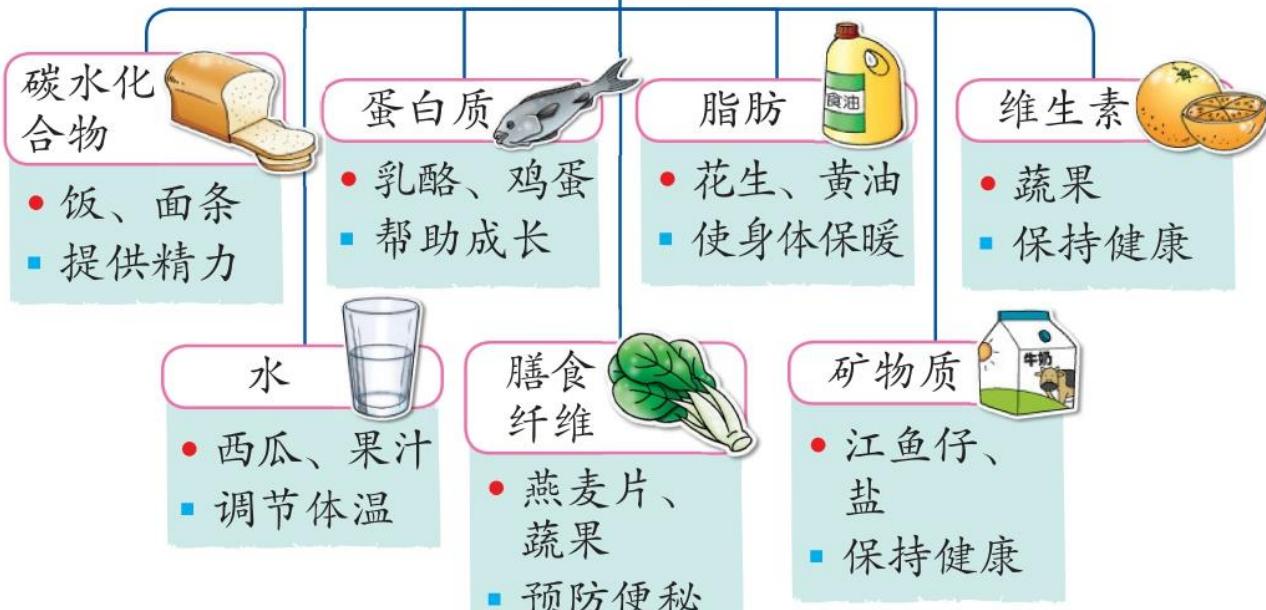


## 3

wǒ men píng shí yìng hǎo hǎo de bǎo hù yá chí      yǐ què bǎo yá chí de gòu zào  
我们平时应好好地保护牙齿，以确保牙齿的构造  
bú huì shòu dào pò huài  
不会受到破坏。



## 营养素



健康又均衡的饮食须涵盖各营养素。食物金字塔是引导我们吃得健康和均衡的指南。



饮食不均衡会对健康带来不良的后果。



消化是身体分解食物并吸收营养素的过程。



食物的消化过程：



食物被消化后，小肠会吸收身体所需的营养素；不被身体所需的残渣会被推出大肠，通过肛门排出体外。



吃东西时说话、跑动或者跳跃，以及吃得太快，都会干扰消化。

yá chǐ de zhǒng lèi jí qí gōng néng

## 牙齿的种类及其功能 Types of teeth & Their Functions

mén chǐ

门齿 (incisors)

jiù chǐ

臼齿 (molars)

quǎn chǐ

犬齿 (canines)

yá chǐ de gòu zào

## 牙齿的构造 Structure of a Tooth

yóu zhì

釉质 (enamel)

yá běn zhì

牙本质 (dentine)

yá yín

牙龈 (gum)

shén jīng

神经 (nerve)

xuè guǎn

血管 (blood vessels)

rǔ yá yǔ héng yá

## 乳牙与恒牙 Milk Teeth & Permanent Teeth

rǔ yá

乳牙 (milk teeth)

héng yá

恒牙 (permanent teeth)

yíng yāng sù

## 营养素 Nutrients

dàn bái zhì

蛋白质 (protein)

zhī fāng

脂肪 (fats)

wéi shēng sù

维生素 (vitamins)

kuàng wù zhì

矿物质 (minerals)

shàn shí xiān wéi

膳食纤维 (fibre)

tàn shuǐ huà hé wù

碳水化合物 (carbohydrates)

xiāo huà

## 消化 The Digestion Process

kǒu qiāng

口腔 (mouth)

shí dào

食道 (oesophagus)

wèi

胃 (stomach)

xiǎo cháng

小肠 (intestines)

-> dà cháng

-> 大肠 (intestine)

gāngmén

-> 肛门 (anus)



## Let's Remember

- There are three types of teeth:



Incisors to cut food

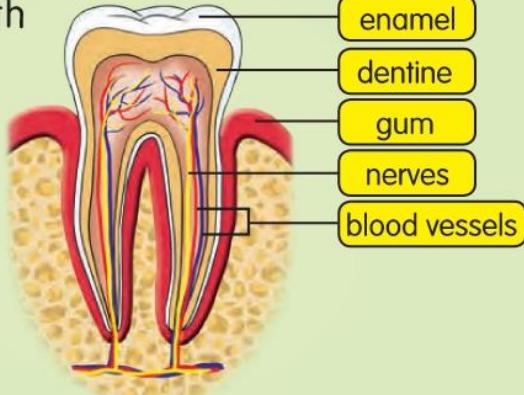


Canines to tear food



Molars to grind food

- The structure of a tooth consists of:



3. Compare and contrast between the milk teeth and permanent teeth sets:

Milk Teeth Set	Permanent Teeth Set
20 teeth, which are: <ul style="list-style-type: none"> <li>• 8 incisors</li> <li>• 4 canines</li> <li>• 8 molars</li> </ul>	32 teeth, which are: <ul style="list-style-type: none"> <li>• 8 incisors</li> <li>• 4 canines</li> <li>• 20 molars</li> </ul>
The layers of enamel and dentine are thin.	The layers of enamel and dentine are thick.
The teeth are smaller and not strong.	The teeth are bigger and stronger.
The teeth are not permanent. They have a short life span.	The teeth are permanent. They have a long life span.
Start to grow at 6 months old and will be complete at 3 years old.	Start to grow at 6 years old and will be complete at 21 years old.
Both sets have the same types of teeth which are incisors, canines, and molars.	

4. Dental care should be practised by everyone to keep teeth healthy and to avoid tooth decay.
5. Examples of dental treatments are fillings, braces, dentures, and root canal treatment.
6. There are seven classes of food, which are:

Food Class	Function
Carbohydrate	Provides energy
Protein	For growth
Fats	Warm the body
Vitamins	Keep the body healthy
Minerals	
Fibre	Prevents constipation
Water	Regulates body temperature

7. A balanced diet is one that includes all the seven classes of food based on the Malaysian Food Pyramid.
8. Digestion is the process of breaking down food into smaller pieces so that its nutrients can be absorbed by the body.

- q. The food flow in the digestion process starts at the mouth, through the oesophagus, towards the stomach and intestine, and ends at the anus.
10. Actions that disrupt the digestion process can cause choking, vomiting, and stomach ache.