

# 4 The Language of Diagrams

برای بیان پروسه های طبیعی از وجه معلوم استفاده می کنیم، ولی در مقابل برای پروسه های ساخت و تولید معمولاً از وجه مجھول استفاده می شود. به این دو مثال توجه کنید:

A river **flows** from its source to the ocean. (active)

Many electronic goods **are manufactured** in Japan. (passive: *be* + past participle)

زمانی که پروسه ها را توصیف می کنیم، باید نشان دهیم که قدرت استفاده مناسب از دو وجه معلوم و مجھول را داریم.  
تمرین:

1. Limestone is the main ingredient of cement. Firstly, it ..... (extract) from the ground. Then, at the factory, it ..... (heat) to a high temperature with other ingredients. After this, it ..... (cool) with blasts of cold air.

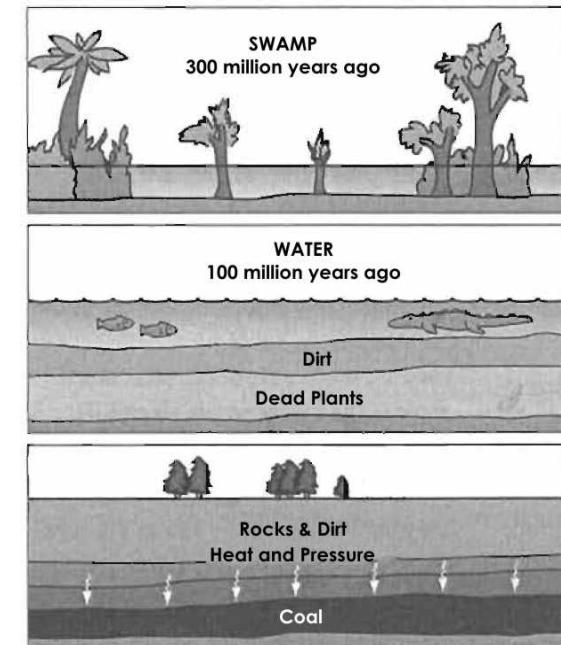
2. When warm air ..... (reach) high grounds, it is forced to rise, and, as a result, it ..... (cool). Moisture in the air ..... (condense) to form rain.

برخی اوقات لازم است برای بیان پروسه ها از زمان های گذشته هم استفاده کرد:

The diagram shows the process by which coal **was formed** over a period of millions of years.

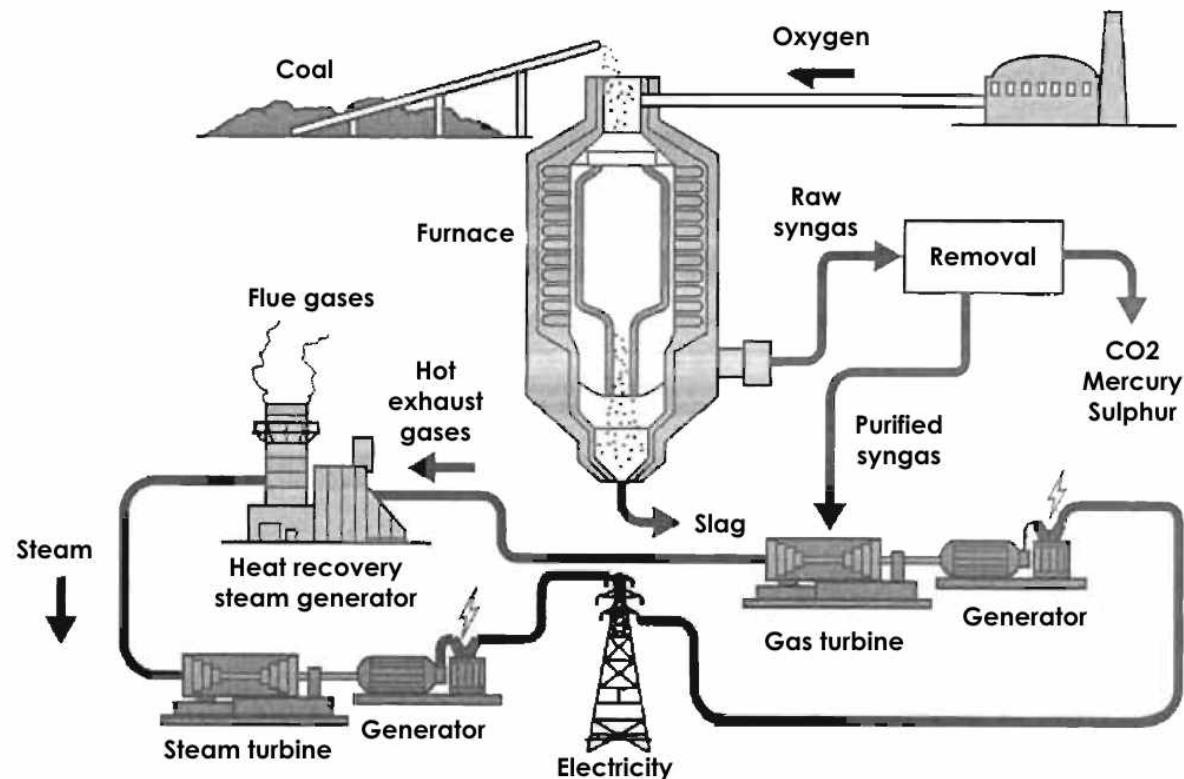
First of all, large plants **lived** in enormous swamps a long time ago. These **died and dropped** to the bottom of the water. Over the years, the dead plants formed a layer, which became deeper and deeper. More and more earth and dirt **built up** on top of this layer. Subsequently, this layer **was covered** by rocks and dirt, and so the energy of the dead plants **was trapped** underneath.

As the pressure and the heat grew over time, the layer of dead plants turned into coal. Seams of coal were formed, and coal **is now mined**.



زمانی که به توصیف پروسه ها می پردازیم، از عبارات زیر می توانیم برای بیان ترتیب ها استفاده کنیم:

First	The first step	Then	Next	The next step	The third step	After that
Before	After + (ing)	As	While	When	Meanwhile	Soon afterwards
Once ...	In the course of	From then on	The last step	Finally	In the process of	Simultaneously



The diagram shows the various stages in the production of clean energy from coal.

**First of all**, the coal is mined in deep pits underground and then carried to the surface. **After that**, it is carried along a conveyor belt to a power plant, **where** it is burned in a large furnace to which oxygen is added.

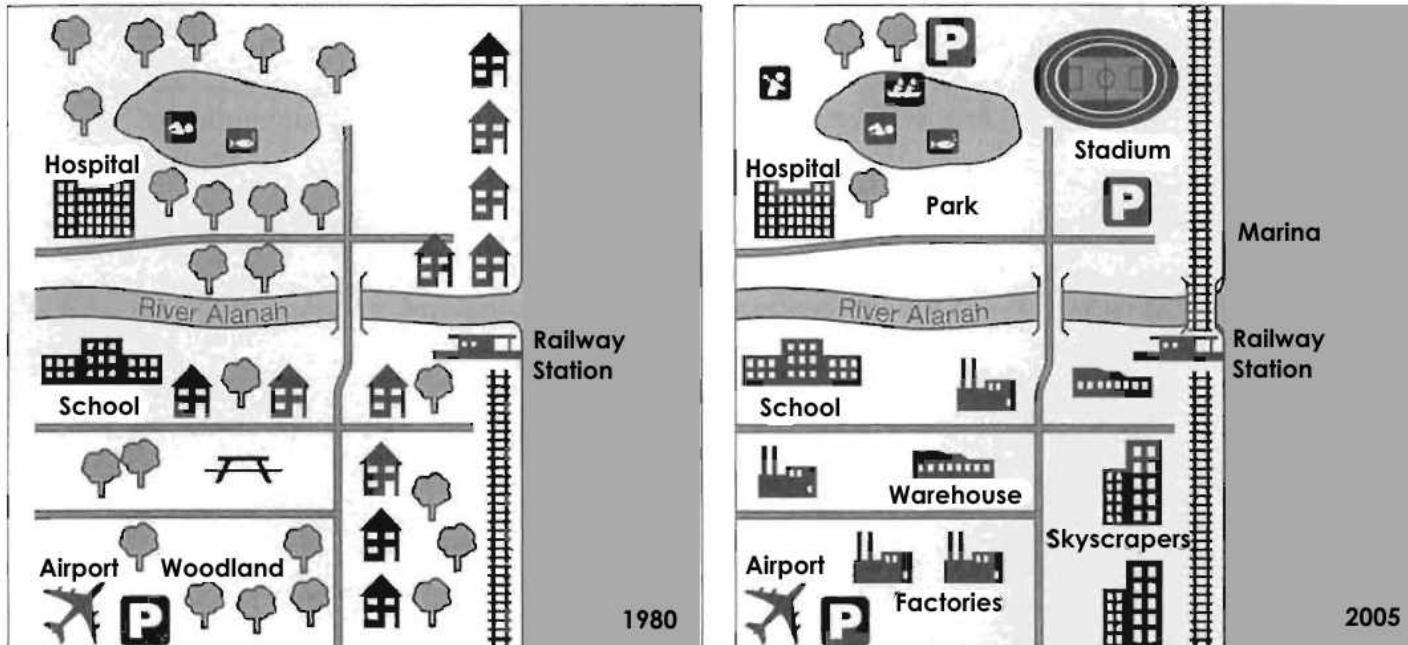
**From this**, raw syngas is produced. At the next stage of the process, harmful substances like carbon dioxide, mercury and sulphur are removed. **Following that**, the purified gas is used to drive a gas turbine. The turbine **in turn** powers a generator, producing electricity. The gas turbine also produces hot exhaust gases. These are **then** piped to a heat recovery steam generator, which converts the heat into steam. The steam is **subsequently** used to power a steam turbine, which again is used to generate electricity.

The energy is clean because harmful products are removed and the coal is not transported to another site to produce electricity.

تمرین: با استفاده از کلمات داده شده، جملات را به هم وصل کنید.

1. The parts of the car assembled. The cars are exported. (after)
2. The snow falls. It covers the ground with a protective layer. (when)
3. Her cubs are born. The lioness licks them all over. (as soon as)
4. The paper is collected. It is sent for recycling. (once)
5. Volcanoes erupt. They send huge amounts of smoke into the air. (before)
6. The plants perspire. The air becomes humid. (when)
7. The trees are cut down. The forest is gradually destroyed. (and)
8. The food is processed. It is packaged. It is distributed. (as soon as – and then)
9. The cycle is completed. It repeats itself all over again. (when)
10. The rubbish is collected. It is sent to a center for sorting. It is recycled. (after – and then)

توصيف تغيرات:



The map shows the developments which took place in the coastal town of Youngsville between 1980 and 2005.

In 1980, the town was a much greener residential area with a large number of trees and individual houses, but during the next 25 years the town experienced a number of dramatic changes. The most noticeable is that all of the trees south of the River Alanah were cut down, with all the houses along the railway line being knocked down and replaced by skyscrapers. Moreover, a new residential estate with factories and warehouses sprang up around the airport and school. Only a few trees north of the river remained.

The woodland was cleared to make way for a park, a golf course, and car parking facilities. Further developments were the construction of a stadium near the north-east corner of the lake and a new stretch of railway from the river running directly north. A marina was also built at the mouth of the river.

Overall, a comparison of the two maps reveals a change from a largely rural to a mainly urban landscape.

یکی از نکات مهم در این توصیف‌ها آنست که فقط به توصیف نقشه‌ها نپردازیم بلکه توسعه و پیشرفت‌های ایجاد شده را نیز بررسی کنیم. برای رسیدن به این هدف می‌توانیم از اسم‌ها و یا فعل‌های مجهول استفاده نماییم. به مثال‌های زیر توجه کنید. همچنین به کلمات مرتبط بکار رفته قبل از کلمات توصیف کننده تغییرات نیز توجه نمایید.

There were **dramatic developments** in the town center. → The town center **was developed dramatically**.

There was a **complete transformation** of the neighborhood. → The neighborhood **was completely transformed**.

There was a **total reconstruction** of the residential area. → The residential area **was totally reconstructed**.

There was a **rebuilding** of the old houses. → The old houses **were rebuilt**.

There was a **total redevelopment** of the old factories. → The old factories **were totally redeveloped**.

There was a **complete modernization** of the entertainment district. → The entertainment district **was completely modernized**.

توجه داشته باشید که اگر بخواهیم در مورد تغییراتی صحبت کنیم که قبل از یک زمان خاص در گذشته رخ داده باشد، از گذشته کامل استفاده می‌شود:

By 2005, the block of flats **had been turned** into a hotel. (passive)

By 2005, the block of flats **had made** way for a hotel. (active)