

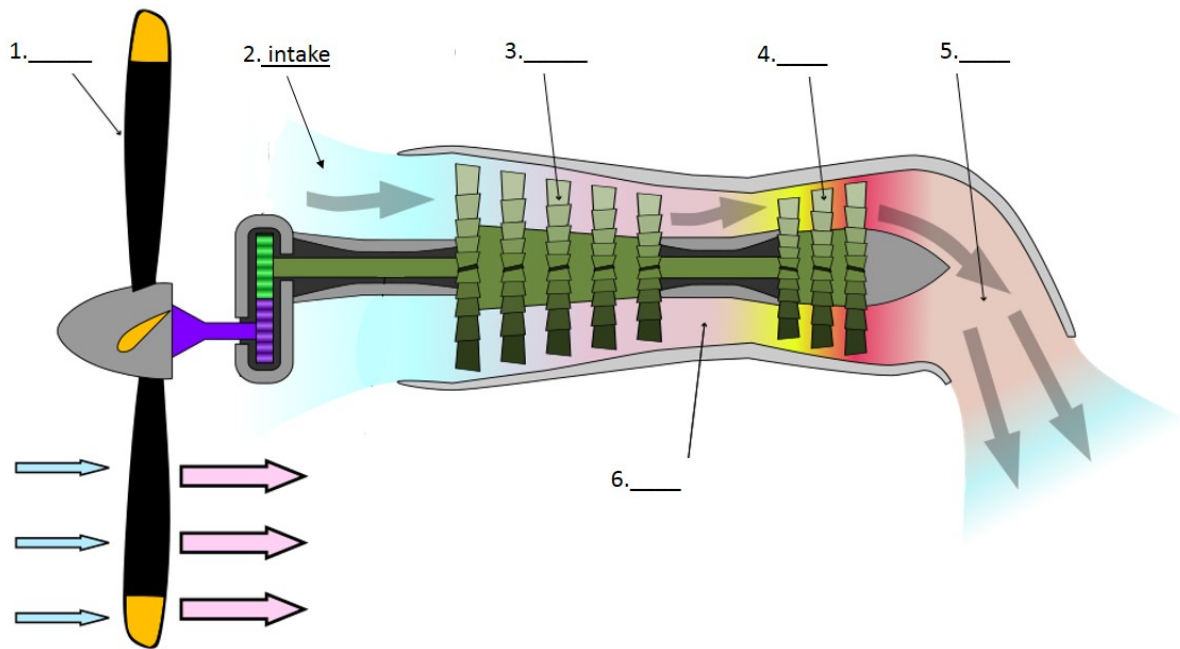
**How does it work?**  
***A lesson in Gas Transmission museum***  
**Glossary**

**Study the words and their definitions**

<b>engine, n</b>	- a machine with moving parts that uses fuel to produce movement
<b>gas line, n</b>	- a very large tube, often underground, through which gas can flow for long distances
<b>pipe, n</b>	- a tube that carries liquid or gas from one place to another
<b>pump, v</b>	- to force liquid or gas to move somewhere
<b>fuel, n</b>	- a substance such as oil, gas, coal or wood that produces heat or power when it is burned
<b>deposit, n</b>	- a layer of a metal or another substance that has formed in soil or rock
<b>pressure, n</b>	- the force that a liquid or gas produces when it presses against an area
<b>compress, v</b>	- to press something into a smaller space

**Complete the sentences with the words from the glossary**

**Task 1.1 Read the text and fill in the gaps in the scheme with the following words:**



The Kuznetsov NK-12 is a Soviet turboprop engine of the 1950s. It was designed by the Kuznetsov design bureau (also known as OKB - 276). NK in the name of the engine stands for Nikolai Kuznetsov, the chief designer of the bureau. NK-12 is the most powerful turboprop engine that has ever entered service.

In 1974, the engine was adapted for gas transportation, so that it could power the gas pump. The Natural gas transported through the gas lines could be used as fuel for the pump, so no extra fuel source was required.

This is how the turboprop engine operates. First, the air from the atmosphere is drawn inside the **compressor** through the **intake**. Then, the compressed air is channeled into the **combustion chamber**, where it mixes with fuel. The fuel-air mixture burns inside the chamber, consequently releasing hot combustion gases. Afterwards, the gases expand through the **turbine**, generating energy. Some of the energy is used to drive the compressor, but most of it powers the **propeller**. After the gases pass through the turbine, they keep expanding in the **propelling nozzle** until they exhaust to atmospheric pressure.

**Task 1.2 Read the text again and underline all the passive forms.**

**Explain why they are used in this text**

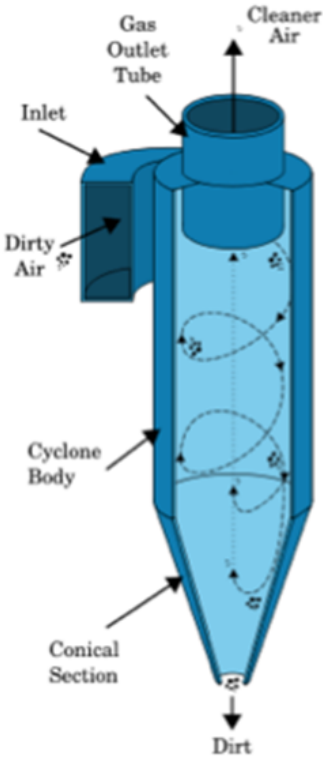
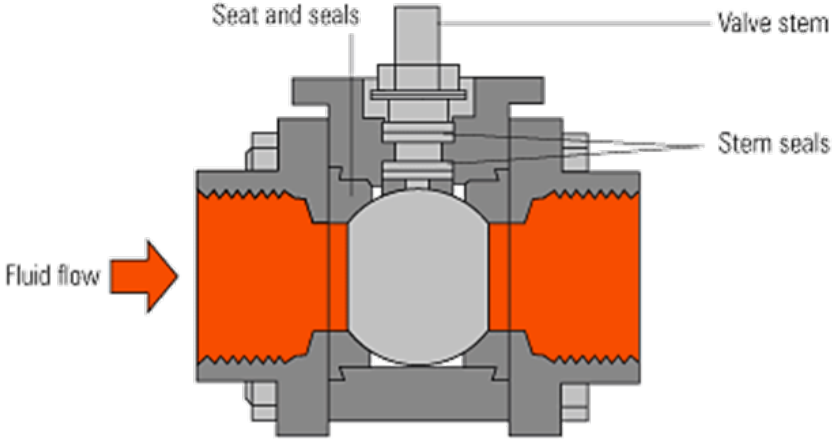
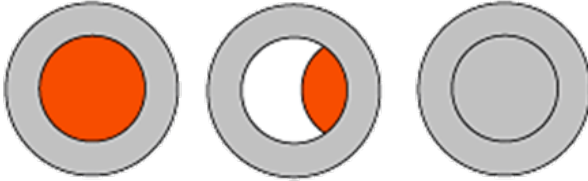
**Task 2.1 Study the gas transportation scheme and put the paragraphs**

into the correct order. Pay attention to the linkers in bold

**Task 2.2 Sort the linkers from the text into the columns according to their functions.**

1	2	3	4	5	6	7
Contrasting ideas	Giving reasons	Explaining the purpose	Explaining consequences	Adding information	Giving examples	Sequencing ideas

**Task 3.1 Study the scheme and decide which of the mechanisms in the room it describes**

Group 1. Cyclone Separator	Group 2. Ball valve
 <p>Labels in diagram: Inlet, Dirty Air, Gas Outlet Tube, Cleaner Air, Cyclone Body, Conical Section, Dirt.</p>	 <p>Labels in diagram: Seat and seals, Valve stem, Stem seals, Fluid flow.</p> <p><b>End view of the ball within the ball valve at different stages of rotation</b></p> <p>Valve fully open      Valve ½ open      Valve fully closed</p>  <p>Fluid passes freely through the orifice</p>
Group 3. Axial flow compressor	

## Axial flow compressor

- It is essentially an axial flow turbine driven in the reverse direction except that in order to achieve a sufficiently high efficiency, it is necessary to design blades by taking extreme care.

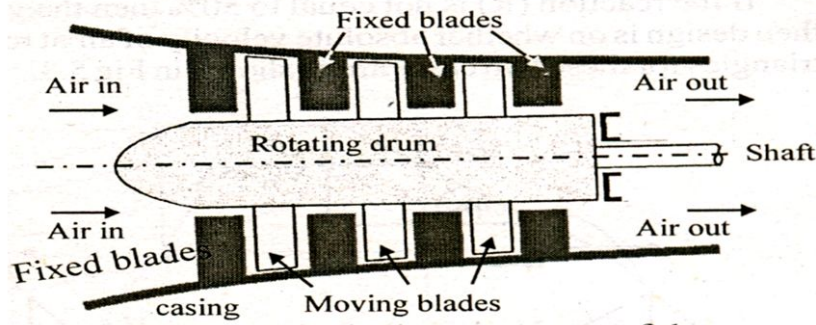


Fig. Principal components of the axial flow compressor.

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**Task 3.2 Use the schemes and the functioning models of the mechanisms to describe how they work. Use passive forms and linkers in your answer**