

4.2 Manufacturing

1  Identify the parts of a car from the box.

| | | | | | |
|------|---------|-------------|------|--------------|--------|
| body | chassis | drive shaft | axle | transmission | engine |
|------|---------|-------------|------|--------------|--------|



[All images from Google Image search]

Do you know how these parts fit together and what they do? Tell your partner.

2 The photos show the main stages in assembling a car, but they are in the wrong order. Write the figure number in the correct boxes in the flow chart.

Fig. 1



Fig. 2

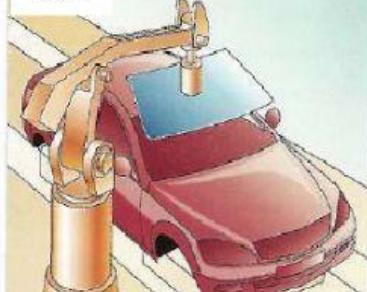


Fig. 3

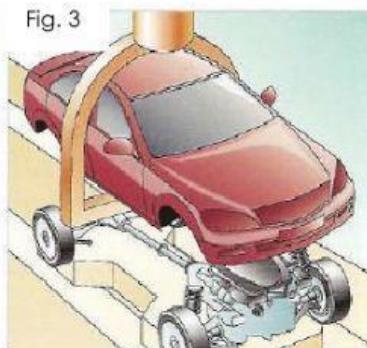


Fig. 4

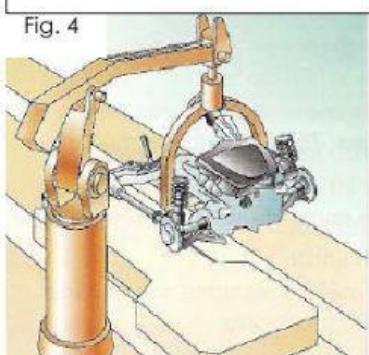


Fig. 5

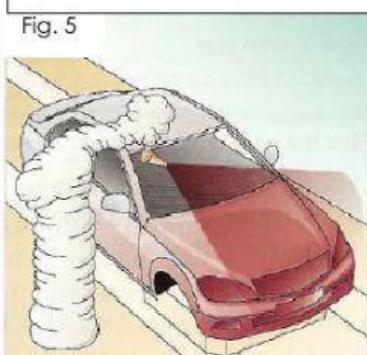
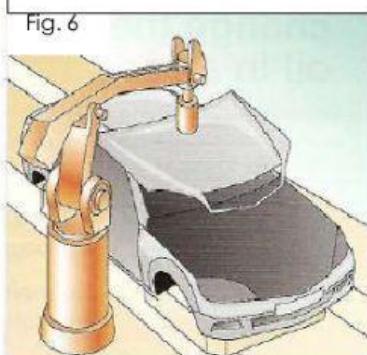
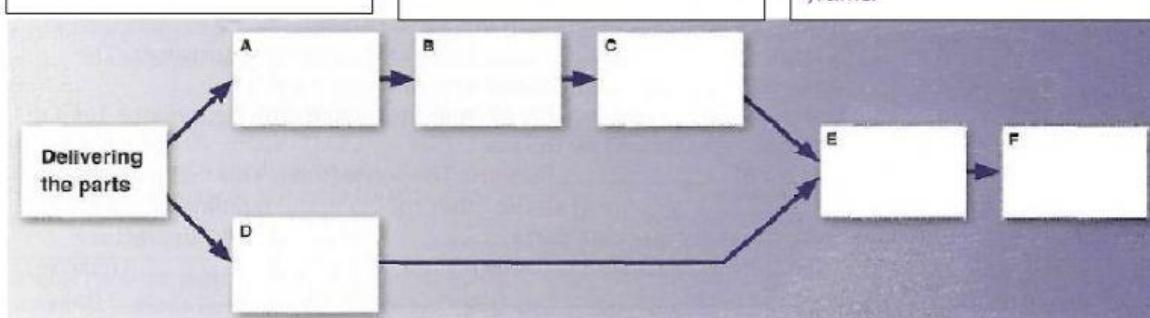


Fig. 6



Welding body panel to body frame.



3 Make captions for the six photos with the verbs and nouns in the box. Use verbs ending in -ing.

| | | | | |
|------|--------|---------|--------------|-------|
| add | attach | install | paint | test |
| weld | body | chassis | finished car | parts |

4  Read this website of a car company and check your answers to 2 and 3.



Assembling a car

First, the parts are delivered by truck or rail to the *delivery area* of the car assembly plant. From here, some parts are taken to the body shop, and other parts are transported to the chassis line. The parts are carried around the plant by forklift trucks or conveyor belts.

In the *body shop*, the panels are welded to the frame to form the body of the car. This is done by more than 400 robots.

Then the body is taken to the *paint shop*. Here it is cleaned and painted by robots. Special clothing is worn by the robots to protect the paint. After this, the body is checked by human workers to look for faults.

Next, the painted body moves along a conveyor belt to the *trim line* and many parts are added to it. For example, the instrument panel, the air conditioning system, the heating system and the electrical wiring are all installed here. The windscreen is inserted by robots using laser guides.

Meanwhile, in the *chassis line*, components are added to the chassis. First, the chassis is turned upside down, to make the work easier. Then the fuel system, the transmission, the suspension, the exhaust system, the axles and the drive shaft are all installed. Next the chassis is turned over (rightside up). The engine is lowered into the chassis and connected to it.

Now the chassis and the body move simultaneously to the *final assembly line*. Here the body is attached to the chassis, and all the final parts are added. The tyres and the radiator are added here. The hoses are connected, and the radiator and air conditioner are filled with fluid. The car's central computer is also installed here.

Lastly, the finished car and all electrical systems are tested. The car is filled with fuel and the engine is started for the first time. The car is put on special rollers to test the engine and the wheels. If it passes the test, the car is finally driven out of the assembly plant.

5  Match actions with their purpose.

- 1 workers weld thin metal sheets to a frame
- 2 they turn the chassis upside down
- 3 the robots wear special clothes
- 4 they turn the chassis rightside up
- 5 workers put the finished car on rollers
- 6 workers check the car body by hand

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| |

- A to check the movement of the wheels
- B to make the car body
- C to inspect it for faults in the paint
- D to protect the wet paint from dust
- E to install the fuel system easily
- F to lower the engine into it