Инструкция выполнения: Для ознакомления просмотрите ролик, перейдя по ссылке [**https://www.youtube.com/watch?v=vZZzg6om8hU**](https://www.youtube.com/watch?v=vZZzg6om8hU). Ознакомившись с материалом, опишите 5 (пятью) предложениями на английском языке суть данного ролика. А также, выполните перевод текста «Differential work». Выполненное задание предоставить преподавателю Королевой Александре Андреевне на адрес электронной почты. Эл.почта: evseeva14alex@gmail.com. Работа может быть выполнена в формате txt, doc, docx или фотография, выполненной работы на бумажном носителе.

**Differential work**

In the work of a symmetrical cross-wheel differential, three characteristic modes can be distinguished:

1. rectilinear movement;

2. movement in a bend;

3. driving on slippery roads.

When the movement is straightforward, the wheels meet equal road resistance. Torque from the main gear is transmitted to the differential housing, with which the satellites move. Satellites, running around the semi-axial gears, transmit torque to the drive wheels in equal proportions. Since the satellites on the axes do not rotate, the semi-axial gears move with equal angular velocity. In this case, the rotational speed of each gear is equal to the rotational speed of the driven gear of the main gear.

When driving in a bend, the inner drive wheel (located closer to the center of rotation) encounters more resistance than the outer wheel. The inner half-axis gear slows down and causes the satellites to rotate around its axis, which in turn increase the frequency of rotation of the outer half-axis gear. The movement of the drive wheels with different angular speeds allows you to go through a turn without slipping. In this case, in the sum of the rotational speeds of the inner and outer semi-axial gears is always equal to twice the speed of the driven gear of the main gear. Torque, regardless of different angular speeds, is distributed to the drive wheels in equal proportions.

When driving on a slippery road, one of the wheels meets more resistance, while the other slides - it skids. Differential, by virtue of its design, makes the skidding wheel rotate with increasing speed. The other wheel stops at the same time. Traction on a skidding wheel, due to the low traction, is small, therefore, the torque on this wheel is also small. And since the differential is symmetrical, the torque on the other wheel will also be small. Deadlock - car cannot budge.

To continue driving, it is necessary to increase the torque on the free wheel. This is done by using a differential lock.