

Discover Dark Matter

Pre activity Questionnaire

Answer these questions before completing the VR activity.

1. Compare answers from the Mission planning document with your colleagues. Make sure you agree on:

- a)** the equation describing the amount of energy that the rocket needs to reach the space station;
- b)** the graph showing the kinetic energy and gravitational potential energy of the rocket as well as the potential energy store in the fuel left;
(Note that the shape of the curves is hard to determine. Focus on the initial and final values and the curves' general shape.)
- c)** the equation describing the orbital speed of a star as a function of the distance to the galaxy's centre;
- d)** the graph showing the orbital speed of a star as a function of the distance to the galaxy's centre.

2. Which of the following statements best describes the link between the orbital speed of a star and its distance to the centre of the galaxy according to the model used in the preparatory document.

- a)** The further a star is from the galactic centre, the larger its orbital speed.
- b)** The further a star is from the galactic centre, the smaller its orbital speed.
- c)** The distance of a star from the galactic centre has no influence on its orbital speed.