
READING ACTIVITIES (Answer key)

1.1. Answer these questions:

- a. Where is dark matter located in this model of a supercluster of galaxies?
Dark matter is **around** and **among** galaxies and galaxy clusters, holding them together by the force of gravity.
 - b. What effects does this dark matter have over the rest of the components of the Universe?
Dark matter is responsible for the **distribution of ordinary (visible) matter** throughout the universe. It exerts gravitational effects over the visible matter holding together galaxies and forming clusters and superclusters of galaxies (filaments). It has as a consequence that some regions of the space have a high density of matter while other regions are practically empty.
 - c. What role did the dark energy have in the development and evolution of the Universe?
Dark energy provokes the **acceleration of the expansion of the Universe**. It acts against the force of gravity, pushing apart galaxies faster and faster each time. So that it is responsible for the growing in size of the Universe.
 - d. What percentage of the whole Universe does visible matter represent? What is it made up of?
Visible matter represents barely the **4%** of the total energy-matter of the Universe. It is made of **hydrogen** (75%), **helium** (20%) and the **rest of chemical elements** (5%) and forms the **celestial bodies** (stars, planets, etc.) and the **interstellar gas** and the **cosmic dust**.
 - e. What is the cause of the irregular distribution of galaxies in the Universe?
The cause of the irregular distribution of galaxies is **dark matter** that holds galaxies together forming groups (galaxy clusters and superclusters) and **dark energy** that push apart these groups, making the space that separate them bigger and bigger
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