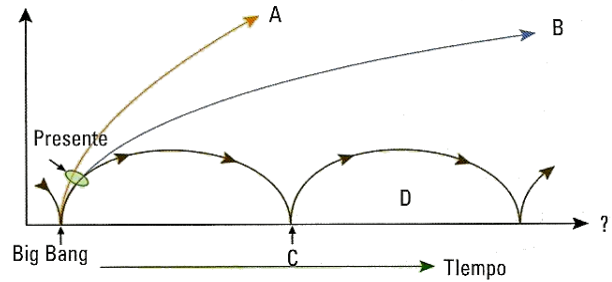

READING ACTIVITIES (Answer key)

2.8. The graph on the left represents the possible futures of our universe.

a. Identify each one.

- A. Big Rip
- B. Big Chill
- C. Big Crunch



b. Which of them seems to be the most probable according to the recent discoveries about dark energy?

It is the **Big Rip**. It is a universe close to the critical density, but in which the repulsive force of the dark energy exceeds gravity.

This would provoke such an accelerated expansion that in a determinate moment the universe would burst and would rip. Matter will be destroyed and time will stop.

However it is not absolutely sure. Other possibility is the **Big Chill**. It is an open universe, where the amount of mass-energy is insufficient and it does not reach the critical density required for gravity to slow down the expansion.

In such universe the space would expand endlessly although at slow rhythm, braked by gravity. All the content of the Universe would be condemned to a cold and slow death in the middle of the most absolute darkness.

c. Which of them is related to the Pulsating Universe hypothesis?

It is the **Big Crunch**. It is a closed universe where the amount of mass-energy is enough to exceed the critical density.

Gravity will be so strong that the expansion will be first slowed down and then will begin an accelerated contraction until to reach the initial point of the singularity.

This hypothesis opens the possibility of a “pulsating” universe that undergoes infinite cycles of expansion and contraction.
