GAIA MEMORY GAME

00001. **Artist's impression of the Gaia spacecraft, with the Milky Way in the background**
Gaia is a mission of the European Space Agency (ESA). Its main objective is to construct the largest and most precise 3D map of the sky, measuring more than a billion stars in our Galaxy, the Milky Way.
Credits: Gaia: ESA/ATG medialab; background image: ESO/S. Brunier.

00010. **Gaia's focal plane**
With a total of 106 CCDs and one billion pixels, is the biggest ever sent to space. The focal plane is common to the two telescopes.
Credits: AIRBUS.

00011. **Integration of Gaia's primary mirror**
Gaia features two identical telescopes, pointing in two directions separated by 106,5º and merged into a common path. Each telescope is composed of six reflectors, the last two of which are common. Gaia mirrors are constructed from sintered silicon carbide, extremely strong and rigid, but lightweight material, with an enhanced silver coating.
Credits: EADS Astrium SAS, France.

00100. **Test of the Gaia Deployable Sunshield Assembly at Europe's spaceport in Kourou**
Gaia's sunshield has a diameter of 10,2 m that protects the satellite from the Sun's direct light and helps to keep a stable temperature at around -110ºC. A high-efficiency solar panel array on top of the sunshield supplies the energy to the satellite.
Credits: ESA-M. Pedoussaut.

00101. **Gaia spacecraft inside the Soyuz fairing, ready to be mated with the Soyuz lower stages**
Gaia took three weeks to reach the L2 stable point at 1,5 million km from Earth, opposite to the Sun. This point allows to keep a constant position with respect to the Sun and Earth.
Credits: ESA-M. Pedoussaut.

00110. **Gaia liftoff from French Guiana on 19 December 2013**
Soyuz launcher VS06 with Gaia lifted off from the European Spaceport in Kourou. The location close to the equator is for optimal efficiency to launch satellites into geostationary orbits or escape trajectories.
Credits: ESA - S. Corvaja, 2013.

00111. **Cebreros ground station (Ávila)**
Gaia uses three ground stations connected to the Mission Operation Center (ESOC, Darmstadt) where all data from the satellite are received and transmitted to the Science Operation Center (ESAC, Madrid). In this image, ESA's deep-space station with a dish antenna of 35 m diameter.
Credits: ESA.

01000. **Barcelona Supercomputing Center (BSC-CNS)**
BSC is one of the centers in charge of the data processing. Each day around 60 GB of Gaia scientific data are downloaded and processed. Every six months, a series of complex algorithms refine the daily data in an iterative manner.
Credits: Barcelona Supercomputing Center (BSC-CNS).

01001. **Method of observation**
The Gaia telescopes scan the sky as the satellite rotates around the spacecraft axis. In six hours the two telescopes of Gaia scan a great circle on the sky and observe ten million objects.
Credits: Gaia (ESA/ATG medialab), Milky Way (A. Fugi, Hubble Space Telescope).

01010. **Gaia scan sky**
Gaia has an additional precession movement around around the Sun direction that allows scanning the whole sky every six months. In five years, each star is observed 70 times in average.
Credits: ESA/Gaia.

01011. **Women scientists, fundamental part in Gaia**
Gaia fairing logo, a girl in reference to the Gaia goddess, reaching for the stars. Around a 25% of the research personal and the managing committees working in Gaia are women.
Credits: ESA.

01100. **The Einstein Cross**
Gaia observations of the Einstein Cross placed over HST image. Gaia shows evidences of General Relativity such as this effect of gravitational lensing, discovered in 1985.
Credits: ESA/Gaia/DPAC/C. Ducourant, J.-F. Lecampion (LAB/O. Bordeaux), A. Krone-Martins (SIM/U. Lisboa, LAB/O. Bordeaux), L. Galluccio, F. Mignard (O. Côte d'Azur, Nice).

01101. **Stars move**
Gaia has been able to measure precisely the circular movement of the stars in the Large Magellanic Cloud. The arrows represented in the figure indicate that movement.
Credits: DPAC.

01110. **Cat's Eye Nebula (NGC 6543)**
Gaia detections in this nebula are shown on top of HST image. More than 84 000 detections are able to precisely trace the gas filamentary structure of the nebula.
Credits: Image from HST (NASA,ESA,HEIC & Hubble Heritage Team (STScI/AURA)). Gaia Image (ESA/Gaia/DPAC/UB/IEEC).

01111. **The Gaia sky in colour**
This map shows the brightness and colour in each portion of the sky of the almost 1.7 billion sources observed by the ESA's satellite between July 2014 and May 2016.
Credits: ESA/Gaia/DPAC.

10000. **Large Magellanic Cloud**
The Large Magallanes Cloud, located at 160 000 light years, is one of the closest galaxies to the Milky Way. It has a mass of approximately ten billion solar masses. In the image, as shown by the Gaia data.
Credits: ESA/Gaia/DPAC.

10001. **Small Magellanic Cloud**
The Small Magellanic Cloud is located at 200 000 light years from us. It is a dwarf galaxy near the Milky Way. In the image as shown by the Gaia data.
Credits: ESA/Gaia/DPAC.

10010. **Colour- Magnitude Diagram**
In this diagram, more than four million stars closer than 5 000 light years to the Sun, are represented using their information in colour, brightness and distance extracted from the Gaia Second Data Release.
Credits: ESA/Gaia/DPAC.

10011. **Orbits for more than 14 000 asteroids in our Solar System, seen by Gaia**
Earth and Jupiter orbits are indicated in white as a reference; the Sun is in the centre. Colour indicated each asteroid's distance from the Sun.
Credits: ESA/Gaia/DPAC.

10100. **Gaia DPAC Plenary Meeting in Sitges 2017**
The Data Processing and Analysis Consortium (Gaia DPAC) is formed by more than 450 people from over 20 European countries.
Credits: Gaia Barcelona