



Further Reading

You are going to read the Abstract of a research article, published in *Scientific Reports*, an open-access peer-reviewed journal. Before you do, answer the following questions:

- ▶ Did computing/calculating machines exist in antiquity? Of what type? Do you happen to know of any?
- ▶ Have you ever heard of the *Mechanism of Antikythera*? Do you know some of the purposes the mechanism is believed to have served? Discuss. Then scan the Abstract and compare your answers.



Antikythera mechanism - Archaeological Museum, Athens. Photo by Giovanni Dall'Orto

▶ **Activity 1:** The following are true statements about the Mechanism of Antikythera. Some of them appear in the Abstract below (with different wording though). Read the Abstract and check which these statements are.

1. The mechanism was discovered by sponge divers who stumbled upon the shipwreck that held it.
2. The Antikythera Mechanism was constructed in the 2nd century B.C. (Hellenistic Period).
3. The mechanism was designed to calculate eclipses and the time of athletic events.
4. It was designed to show the motions of celestial bodies (e.g., the Moon).
5. The mechanism used a complex system of bronze gears.
6. Various reconstructions of the mechanism have been built so far.
7. A team of researchers have used a special imaging technique in order to look at the inside of the instrument.
8. The researchers used cutting-edge scanning equipment to decode part of the mechanism.

A Model of the Cosmos in the Ancient Greek Antikythera Mechanism

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Scientific Reports 11, Article number: 5821 (2021)

Abstract

The *Antikythera Mechanism*, an ancient Greek astronomical calculator, has challenged researchers since its discovery in 1901. Now split into 82 fragments, only a third of the original survives, including 30 corroded bronze gearwheels. Microfocus X-ray Computed Tomography (X-ray CT) in 2005 decoded the structure of the rear of the machine but the front remained largely unresolved. X-ray CT also revealed inscriptions describing the motions of the Sun, Moon and all five planets known in antiquity and how they were displayed at the front as an ancient Greek Cosmos. Inscriptions specifying complex planetary periods forced new thinking on the mechanization of this Cosmos, but no previous reconstruction has come close to matching the data. Our discoveries lead to a new model, satisfying and explaining the evidence. Solving this complex 3D puzzle reveals a creation of genius—combining cycles from Babylonian astronomy, mathematics from Plato's Academy and ancient Greek astronomical theories.