COUNTING AND READING THE HOUR IN CUNEIFORM DIGITS

Learn to count and calculate like the ancient Babylonians

, Haus der Astronomie

Téma podle vzdělávacího plánu
Stars

Velká vědecká myšlenka

Klíčová slova
Islamic heritage, Sundial

Věková skupina
8 - 14

Stupeň vzdělávání
Primary School, Middle School

Čas
1h

Velikost skupiny
Individual

Dohled z důvodu bezpečnosti
Supervised

Cena
Low (< ~5 EUR)

Místo
Indoors (small, e.g. classroom)

Základní dovednosti
Asking questions, Using mathematics and computational thinking

Typ vzdělávací aktivity
Partial enquiry

STRUČNÝ POPIS

In this activity children learn in a playful manner to write the western numeral system in cuneiform and to carry out some additions. Also they are invited to read the hours of a clock and write them in cuneiform digits.

Fig. 4

Counting in cuneiform _(Credits: mesopotamia.philipmartin.info/mesopotamia*scribe.png, public domain)*

CÍLE

Children get to know the cuneiform symbols to perform easy additions. This way they understand how people in Babylon used the sexagesimal system. The activity shows the influence of 3000 years of legacy that is still felt today.

VÝUKOVÉ CÍLE

After this activity, the children will be able to:

- describe that the numeral system that we use to measure time and angles originates from the ancient Sumerians and Babylonians.
- describe that the Babylonian numeral system is 60-based.
- read and write ancient Babylonian numbers.
- perform simple calculations in Babylonian numbers.

HODNOCENÍ

The teacher may ask the children where we use fractions and multiples of the number 60 for measuring. He/she may ask how many minutes are in an hour and how many seconds are in a minute.

The teacher may let the children explain the system of numbers used by the Babylonians. By studying the conversion table, the children should realise that there are actually only two different symbols that are combined in groups of up to nine.

The teacher will check the results of the exercise. Optionally, the teacher can ask the children to present their results and compare them with their neighbours.

POMŮCKY

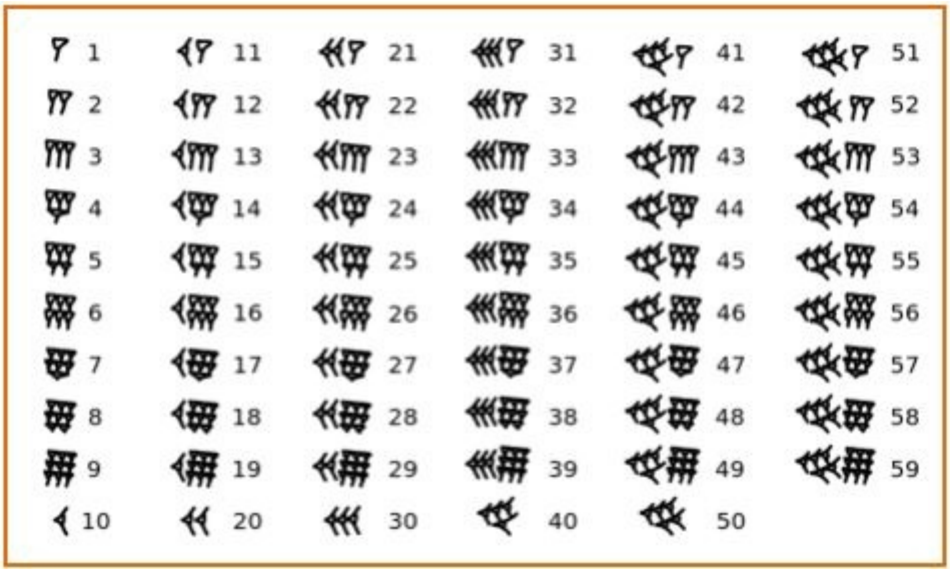
- A copy of the table with cuneiform digits
- A sheet of paper with a clock
- A pencil

INFORMACE O TÉMATU

The Sexagesimal numeral system uses the number 60 as its base. It was developed by the ancient Sumerians in 3000 BCE and was widely used by the Babylonians for centuries. We still use it today for measuring time, angles and geographic coordinates! This system did not use 60 different symbols for its digits. Instead, the cuneiform digits of the Sumerians and Babylonians used 10 as a sub-base (see table below). This system had huge advantages, because many fractions involving sexagesimal numbers can be simplified. The reason for this is that the number 60 has twelve factors: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, and 60, of which 2, 3, and 5 are prime numbers (the latter only have two divisors: 1 and itself).

PODROBNÝ POPIS AKTIVITY

a) Look carefully at the table with the cuneiform digits. These digits are very simple: 𒁹 means 1 and 𒌋 means 10.



Cover the previous table with a sheet of paper and to write down the following numbers in cuneiform on the table A. Then try to perform the additions in cuneiform in table B:

Western numbers	Cuneiform digits
1	
2	
8	
20	
25	
30	
37	
40	
43	

Table A

Western numbers	Cuneiform digits
1 + 1 =	
2 + 10 =	
8 + 20 =	
20+ 3 =	
25 + 4 =	
30 + 10 =	
37 + 3 =	
40 + 10 =	
4 + 7 =	

Table B *Table A and B with exercises to learn cuneiform digits (Credits: Scorza)*

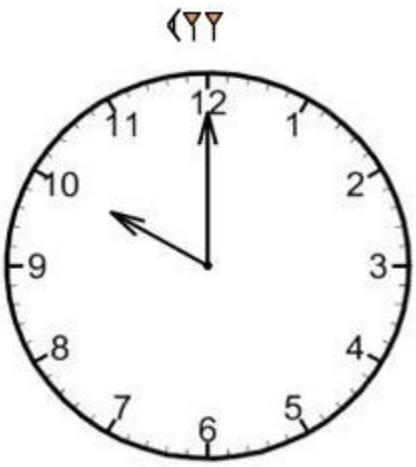
b) We will now explore the legacy of Babylon in the division of time:

Do you know how many minutes there are in one hour?

Do you know how many second there are in a minute?

People in Babylon defined the amount of seconds and minutes that should be in an hour more than a thousand years ago and we still use their division of time!

Write down the digits that are on a clock (1 to 12) in cuneiform following the example:

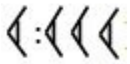


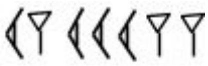
Write down in cuneiform the following hours:

10 a.m.

answer: 

10:30 a.m. answer:



11:32 a.m. answer: 

VZDĚLÁVACÍ PLÁN

Space Awareness curricula topics (EU and South Africa)

The journey of ideas, Stars

ZÁVĚR

This activity builds a bridge between ancient and modern numeral systems. It demonstrates that the way we indicate time and angles is inherited from ancient civilisations like the Sumerians and the Babylonians. At the end of this activity, the children should realise how old this concept is and where it comes from. They will have learned how the ancient Babylonians wrote numbers by using the old symbols themselves.

Tvorba webových stránek byla financována z programu Evropské komise Horizont 2020, grantová smlouva č. 638653