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## ИССЛЕДОВАНИЕ ОБРАЗОВАТЕЛЬНОЙ ПРАКТИКИ В МОНГОЛИИ И КАЗАХСТАНЕ

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### МОНГОЛЬСКИЕ НАРОДНЫЕ ИГРЫ ДЛЯ РАЗВИТИЯ ИЗОБРЕТАТЕЛЬНОСТИ В ОБУЧЕНИИ

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В статье обобщается опыт использования монгольских народных игр для развития изобретательности в процессе обучения математике. Определены ориентиры новой монгольской педагогики, которая объединяет национальные традиции с современными достижениями образовательной практики.

**Ключевые слова:** монгольская педагогика, народные игры, изобретательность, математика.

The use of the Mongolian folk games for ingenuity in teaching mathematic Today, when the country is preparing future citizens, who are destined to live in humane democratic society, as never before raises sharply problem to create a new Mongolian pedagogy, which combines with national traditions accumulated over the centuries and modern educational achievement of science.

The first President of Mongolia in his speech from 28<sup>th</sup> of the middle month of autumn of the year of Horse, of XVII sixtieth anniversary by Mongolian chronology, has expressed his care about the weakening of traditional customs, religion, history and culture of Mongolian generations, stated that: "It is necessary to revive in every family and in every family member the humane view and honoring a human, careful attitude to animals and nature, which had kept from long time ago, when our ancestors have created a hearth of united Mongolia and sacredly transmits to all generation of Chingis Khaan. Every family and every person should respect this traditional education, which has an obvious result and bring happiness to everyone. Everyone should know about it and should follow it as a law." Also, in the declaration proved by the President of Mongolia "Direction of the state concerning children and youth issue" noted that State politics is wholly aimed to raise physically health youth, who obtain accumulated by mankind knowledge, to educate them for prosperity of the Motherland, national unity, humane and democracy. All these aims provide wholly guarantee of our country to threshold of XXI century step to step with world civilization.

Wherein Mongolian philosophy, specific aesthetic feelings of Mongolian, national writing and language, also culture of our ancestry's custom should become a mainstay of our children and youth's education.

Indispensable condition for successful achievement of the above aims is deep penetration into cultural inheritance of own people, especially in pedagogical thinking and progressive tradition of education.

Mongolian people, who treat with great respect to knowledge and science since olden times, have used various methods for children and youth's intellect development. Among them very important place occupy folk games, folk verbal tasks and acumen tasks. K. U. Ushinskii wrote: "Proper organization of reach heritages of folk education and use it as new, advanced way for children training — is a sacred home for future teachers." We have done analysis of the several types of Mongolian national games' contents, determined their training educational role, games rule according to child's age and mental development, have done attempt to confirm this from the education and psychological point of view.

Strict implementation of the rules of games became the fundament of moral norm of children, a guarantee that a child will be a citizen, who implements and respects a law. Let's present some lessons for uptake from reach folk games arsenal. This type of games includes the games such as "Anvil stone", "Mixer for kumiss", "Stirrup" and "Mongolian lock and key".

Mongolian folk tasks for uptake and verbal tasks belong to games' exercises. Games exercises use exclusively in education process.

Didactic exercises use for making math lesson more meaningful and purposeful.

Consider how to use several games in children education progress and training.

a/ Heaven losk

As a result of research work of famous Heaven losk /Mongolian key/, we can made a decision, that Mongolian people use 67 digit numbers, know geometrical progress, were used number series for creating Mongolian key.

If create Heaven losk /Mongolian key/ with 222 rings, than number of its release will be  $2^{222} + 2^{220} + 2^{218} + \dots + 2^4 + 2^2 + 1$ , number of rings and number of release shown in the following table:

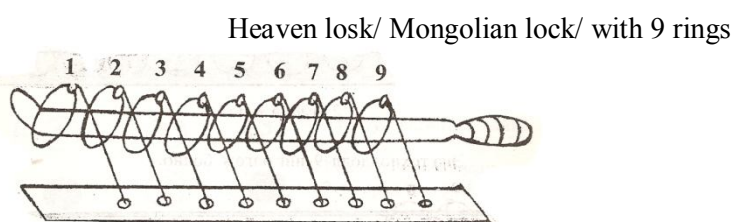
Number of rings	Number of release	Method finding number of release
1	1	$2^1 - 1$
2	3	$2^2 - 1$
3	9	$2^3 + 2^1 - 1$
4	19	$2^4 + 2^2 - 1$
5	41	$2^5 + 2^3 + 2^1 - 1$
6	83	$2^6 + 2^4 + 2^2 - 1$
7	169	$2^7 + 2^5 + 2^3 + 2^1 - 1$
8	339	$2^8 + 2^6 + 2^4 + 2^2 - 1$
9	681	$2^9 + 2^7 + 2^5 + 2^3 + 2^1 - 1$

From this Table can see that Mongolian lock with one ring could be released by one push of medium rod and could be closed by one push.

Heaven losk /Mongolian key/ with two rings be released and closed by three pushes etc.

Heaven losk /Mongolian lock/ can make with 3, 4, 5, 6, 7, 8, 9 rings.

According to raising specification and studied topic should be used one or the other lock. For example: Heaven losk /Mongolian lock/ game can be used for studying “Numbering” in first grade, in second and third grade — in studying “multivalued number”, in fifth grade — in studying “degree with natural indicator”, in eighth grade — for studying topic “progress”.



Picture 1

Heaven losk /Mongolian lock/ should be started with 3,4, 5 rings.

Game with 9 rings is a bit difficult.

Therefore we offer the following version of lock with 9 rings.

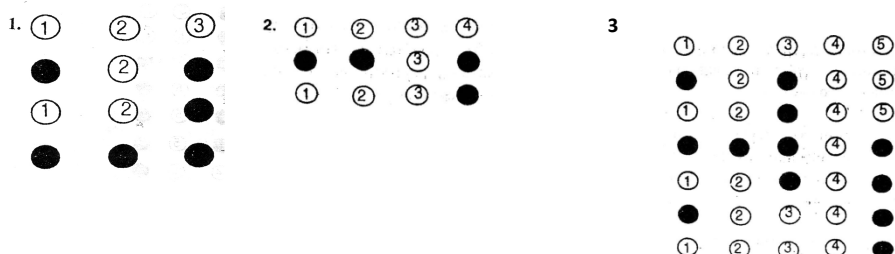
Rings are numbered as: 1, 2, 3 .....9 hanging rings are noted by white circle and falling rings noted by black circle.

- All 3 rings are hanged
- 1 and 3 rings are falling, 2 are hanged
- 1 ring is hanged backward
- All 3 rings are fallen

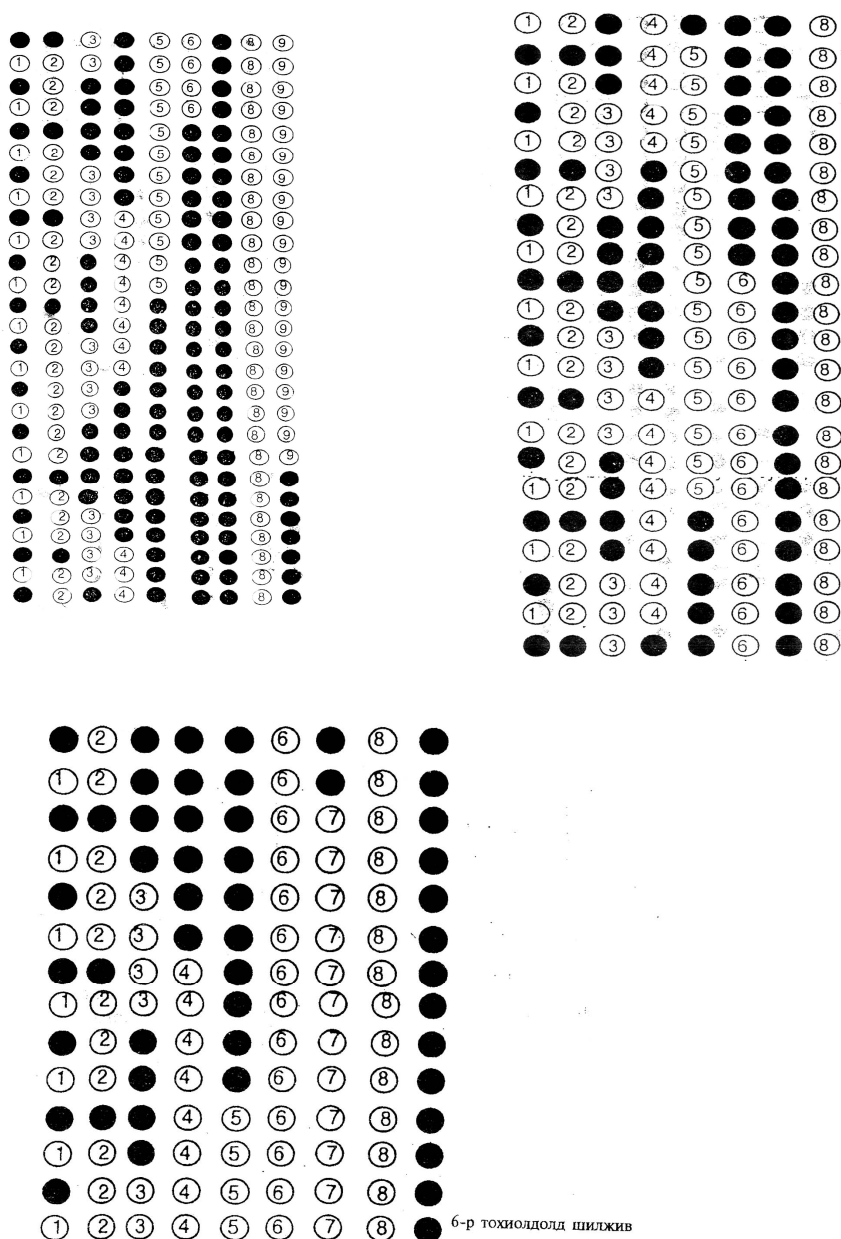
Lock will be open through 3 steps.

Initial position with 4 rings

- Came to the previous case
- Initial position with 5 rings
- Came to the second case
- Initial position with 6 rings
- Came to the third case





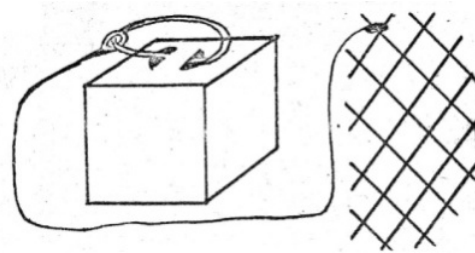


- Initial position with 9 rings
- Came to the 6<sup>th</sup> case

This game can also use for studying natural line to find the previous and next number, for direct and backward accounting.

b. Anvil stone

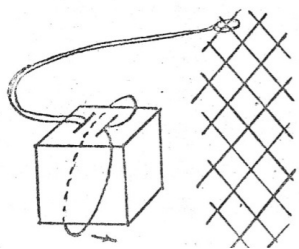
picture 2



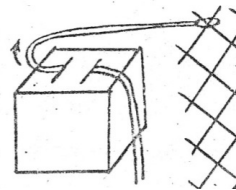
“Anvil stone is the old Mongolian task that require from human a big grimpation.  
“Anvil stone” is tied by rod as it shown in the Picture 2, and the task is release the stone without cut off or untie the rod.

The answer is shown in the pictures 3, 4.

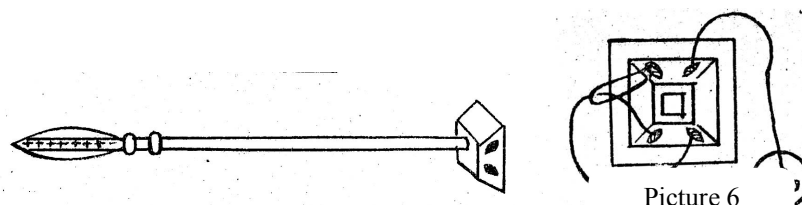
C. Mixer



Picture 3



picture 4



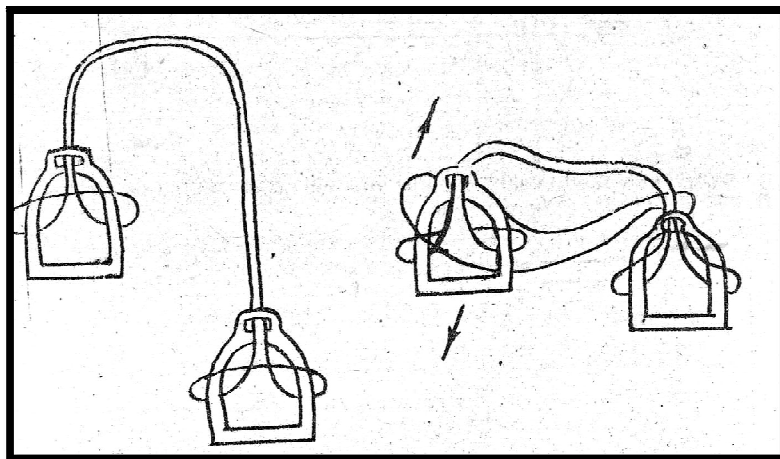
Picture 6

The bottom of the Mixer has 4 holes. Through these holes there is a thin string as shown in picture 5.

At the end of the string tied up a wooden cross, which does not pass through the holes.

The task is release a string but do not cut off it.

Progress of solution is shown in the picture 6.



D. Stirrup Picture 7.

Stirrups are tied by strings as shown in the Picture 7. The task is to release stirrups, but do not untie.

Such tasks can be continued as long as we want.

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#### THE USE OF THE MONGOLIAN FOLK GAMES FOR INGENUITY IN TEACHING MATHEMATICS

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In article experience of use of the Mongolian national games for development of an ingenuity in the course of training in mathematics is generalized. Reference points of new Mongolian pedagogics which unites national traditions with modern achievements of educational practice are defined.

**Keywords:** Mongolian pedagogics, national games, ingenuity, mathematics.