

Pytagora, in its Italian version, was the second game published by CreativaMente, in 2003. Following the magical encounter in 2014 with Prof. Luigi Regoliosi, after years of experimentation, Pytagora became in 2018 one of the pillars of the "Contest Mathematics for All" and it was played by tens of thousands of children and teenagers in all schools of Italy. Therefore we decided to develop a game for a wider age range, both to entertain even the youngest, starting from 4 years, and for more complex challenges for high school kids and, of course, for adults, by introducing brackets, powers, roots, fractions and decimal numbers. To do this, we doubled the number of puzzle pieces (from 126 to 252) and we also introduced two special dice, one to train the little ones with numbering and the other one to make each game turn more engaging and interactive.

The new Smarty PUZZLE PYTAGORA is therefore a richer box to play 6 different games. In addition to PYTAGORA (from 8 years), described at page 2, you can play the two versions PYTAGORA BASIC (from 6 years) and PYTAGORA PRO (from 10 years), described at page 3. At page 4 there are the rules of the game to train with multiplication tables and two games for the little ones: THE NUMBER and THE SQUARE.

Have fun, remembering Plato's teaching: "No training discipline has such an efficacy as the science of numbers; but the most important thing is that it awakens those who by nature are sleepy and late of intellect and makes them ready to learn, with good memory and insightful, making them to progress by divine art beyond their natural abilities".

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252 puzzle pieces, each with a number or symbol, divided into 4 different types. The puzzle pieces are plasticized and made of foam, in order to last longer than the traditional cardboard and to make easier the "stick-and-remove" operations during the game. The pieces must always be used by placing the two joints at the top and on the right, and the two holes at the bottom and on the left.





• 1 wooden light blue die 1 for the game THE NUMBER

- 1 wooden blue die 1 for the games PYTAGORA and PYTAGORA PRO
- 1 cotton bag 12
- this instruction manual

#### AIM OF THE GAME

Each player receives a set of numbers and symbols at the beginning of the game and everyone must compose equalities with them, by scoring as many points as there are pieces in the equality, plus any bonuses. At the end of each turn the set of pieces is brought back to the same number of pieces. The winner is the first to reach, or exceed, the winning score.



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#### ÞYTAGOR/

#### PREPARATION AND START OF THE GAME

Use all the pieces of level 1 and level 2: all puzzle pieces with numbers 24 and symbols 35 are put into the bag (12), for a total of 119 pieces. Put the 19 pieces with the symbols of equality available on the table and leave all the other pieces in the box. Each player randomly draws 10 pieces from the bag.

The player who has the highest number of 1 starts (and, in the event of a tie, the highest number of 2, then 3 etc.) and the game then proceeds clockwise.

#### JAME PLAY

- On his turn, the **Current Player** (CP) must:
- roll the **blue die** and follow the indication in the BLUE DIE TABLE
- compose an arithmetic equality (B), taking an equality symbol (1) from those available, using as many pieces as possible and respecting the Rules for the composition of equalities (page 3). If the CP is not able to compose any equality with his pieces he can pass the turn (without scoring points) or he can take 2 pieces (1 number and 1 symbol, by choosing them from the bag) and proceed as required by the die, but paying a 5 points penalty
- calculate the score of his equality and add it to the score he acquired up to that moment
- draw from the bag as many new pieces as he has just put into play, so as to return to having 10. If he has less than 3 numbers, he can draw more up to have 3, and similarly if he has less than 3 symbols.

#### **KALKULATION OF THE SKORE**

- Each piece scores 1 point, with the exception of the symbol = (1) (which does not score any point). Moreover:
- the first crossing (using a piece already on the table (14) scores 1 point, the second crossing (15) scores 3 points, the third scores 5, the fourth 7, etc.
- when a digit is used as a ten it scores 2 points instead of 1, such as the number 1 🚯 in the equality 🔞. Likewise, when used as hundreds it scores 3 points, as thousands 4 points, and so on. This rule does not apply when composing equalities with identical numbers to the right and left of the equal (53 = 53 scores 4 points)
- the piece with the multiplication (1) scores 2 points instead of 1 and the division (1) scores 3 points. This rule does not apply when:
- you multiply or divide by 1  $(3 + 2 = 5 \times 1 \text{ scores } 6 \text{ points})$
- $\circ$  you compose equalities with identical operations to the right and left of the equal (6 x 12 = 6 x 12 scores 8 points)
- you divide a number by itself  $(25 \div 25 = 1 \text{ scores } 8 \text{ points})$
- if all the pieces of your equipment are used you will earn 3 bonus points



## BLUK ÞIK TABLK



instead of composing a new equality the CP must continue an existing equality (e.g.  $6 + 1 = 7 = 21 \div 3$ ), scoring points only for the new added pieces (21 ÷ 3 scores 7 points). If it is the first round of the whole game, the CP rolls the die again



before starting the CP draws 3 new pieces from the bag and starts his turn with 13 pieces



the CP makes one of his pieces double (for example in the equality 17) he can double the value of the piece with the division symbol (18), by scoring 14 points instead of 11)



instead of composing a single equality, the CP has the opportunity to compose two



before starting the CP steals one piece of his choice from any of the other players. That player then draws a new piece from the bag to return to having 10



the CP places the die on the preferred face, and he does that operation

#### END OF THE GAME

The winner is the first player to reach, or exceed, the winning score, once all players have done the same number of turns. In the event of a tie, the players with the lowest number of pieces take another turn each, and so until one is the winner. It is suggested to set the target of 41 points as the winning score. It is however the players' decision to raise or lower the winning score, depending on whether they want to play longer or shorter matches.



### THE NUMBER 🥶

#### PR€PARATION AND START OF TH€ GAM€

Put all the pieces with the numbers 2 and 4 into the bag, for a total of 77 pieces. Each player randomly draws 5 pieces from the bag. 1 piece is drawn and placed in the centre of the table. This piece is called the NUMBER. The youngest player starts, and the game then continues clockwise.

#### **GAME PLAY**

The CP rolls the light blue die 🕕 and must put one of his pieces on top of the NUMBER, according to the indication of the die, as indicated in the LIGHT BLUE DIE TABLE. For example, if the die indicates +1 (21) and the NUMBER is a 6, the CP must put a piece with the 7, which becomes the new NUMBER. If instead he cannot put any of his pieces above the NUMBER, then he must draw a new piece from the bag and, if this piece can be played, he can immediately put it on top of the NUMBER.

### LIGHT BLUE DIE TABLE



the next number (e.g. if the NUMBER is 6 you must put 7)



a higher number (e.g. if the NUMBER is 6 you can put 7 or 8 or 9)



the same number (e.g. if the NUMBER is 6 you must put another 6)



the CP can put the die

(e.g. if the NUMBER is 6

you can put any number

the previous number

6 you must put 5

a smaller number

from 0 to 5)

(e.g. if the NUMBER is

on the preferred face

**KMARK**: If the CP has the possibility to put a second piece on top of the NUMBER (and then possibly also a third one and so on) he can do so, for example putting a piece with the number 8 on top of the piece with the 7 that he had just put.

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The game ends when a Player, the Winner, puts the last of his pieces.

## MULTIPLI<ATION TABLes

#### PR€PARATION AND START OF TH€ GAM€

Place on the table 7 pieces with the multiplication sign 🚯 and all pieces with the equality symbol 1. Put all the pieces with the numbers 2 and 4 into the bag, for a total of 77 pieces. Each player randomly draws 10 pieces from the bag.

#### **GAME PLAY**

Two numbers are randomly drawn from the bag and a multiplication sign is taken from the table to compose the corresponding operation. For example, if a 3 and an 8 are drawn, an X is taken to compose the 3 X 8 sequence. Each Player who has the pieces (1 or 2) corresponding to the result takes an equality symbol and attaches them to the sequence. For example, if a player has both 2 and 4 he takes a piece of equals from the table to compose the sequence 3 X 8 = 2 4. If other players also have the 2 pieces, each one takes an equal symbol from the table and continues the sequence by adding their pieces:  $3 \times 8 = 2 4 = 2 4$ , and so on. Before ending the turn, each player draws a new piece from the bag.

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The game ends when 7 game turns have been made. Whoever has the lowest number of pieces wins. In the event of a tie, the players with the same high score take another turn each, using a new piece with the multiplication sign, until there is only one winner.





### ÞR€ÞARATI⊘N ANÞ START ◇F TH€ ∢AM€

Put all the pieces with the numbers 2 and 4 into the bag, for a total of 77 pieces. Each Player randomly draws 10 pieces from the bag. A piece with the number 5 26 is taken and placed in the centre of the table. The youngest player starts, and the game then continues clockwise.

#### **∢AM**€ ÞLAY

The CP must put one of his pieces on the table by attaching it to one of the numbers already present. For example, if on the table there is the sequence (22), the



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CP can put a piece with the 6 UNDER the number 7 23 or a piece with the 3 BEFORE the number 4 24. If instead the CP cannot attach any of his 23 pieces to one of the two numbers that are at the two ends of the sequence, then he must draw a new piece from the bag and, if the piece can be played, the CP can immediately attach it to one of the two ends.

#### REMARKS:

- When the sequence reaches 9 (to the right) or 0 (to the left), the CP can start the two vertical sides of the square, attaching the number 8 25 under 9 to start the descending sequence (987 etc.) or attaching the number 1 below 0 to start the ascending sequence (0 1 2 etc.)
- When one of the two vertical sequences has been completed, the CP can start the fourth side of the square, horizontally

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The game ends when the square is completed, by placing on the table the last of the 36 pieces. Whoever has the lowest number of pieces wins. In case of a tie, whoever has put the last piece wins.

#### ∢AM€ VARIATI�N: €V€N ANÞ �ÞÞ

You can play by separately composing two smaller squares: the one with even numbers (0 2 4 6 8) and the one with odd numbers (1 3 5 7 9). At the beginning, both a piece with the number 4 and a piece with the number 5 are placed on the table. At his turn, the CP can attach one of his pieces to any of the two squares. The game ends when both squares are completed.