

Properties of Numbers Connect Four Game

49	Square and a triangular number	Even and square number	Multiple of seven and square number	10
11	Multiple of three and even number	Prime number	Multiple of five	28
2	Multiple of five and an even number	Odd number	Square number	4
36	Multiple of three	Even number	Even and triangular number	25

Revise names/qualities of properties by playing a game

Properties of Numbers Connect Four

A helpful colleague "Wotsitagain" has posted a challenging task on the TES resource bank for those about to attempt KS2 SATs. It's called "Properties of Number Puzzle" and involves constructing a chart/grid where numbers share more than one property. You can easily find it by searching its name on the TES site or if you want to browse through other activities search for "Maths" and "Game/Puzzle" and sort by "Date Submitted". It is an excellent activity for numerate EAL pupils in being challenging and stimulating a lot of purposeful talk when attempted in small groups. It will be appropriate for KS3 too.

I felt that many of the pupils I work with might find it too challenging and have thought up a prequel to build up their stamina. I have produced a (surprise, surprise) Connect Four game. At the moment it only uses the numbers in the original activity. It will work better if the blank cards were filled either with the same numbers or extra numbers. I would be interested if any colleagues might like to try the activities out with their pupils and/or suggest other numbers/other combinations of properties, or even in the white heat of SATs preparation come up some more similar activities that practice properties.

I have produced a coloured version as well as a plain set of cards on the principle that most of you have colour printers and it will save you time photocopying onto card in two colours. I laminate a paper version, and find it becomes thick enough to use for a game.

Webaddress: <http://www.collaborativelearning.org/propertiesc4.pdf>
Thanks to feedback from you, there are some slight revisions to the gameboard.

Last updated 13th March 2017

COLLABORATIVE LEARNING PROJECT

Project Director: Stuart Scott

We support a network of teaching professionals to develop and disseminate accessible talk-for-learning activities in all subject areas and for all ages.

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BRIEF SUMMARY OF BASIC PRINCIPLES BEHIND OUR TEACHING ACTIVITIES:

The project is a teacher network, and a non-profit making educational trust. Our main aim is to develop and disseminate classroom tested examples of effective group strategies that promote talk across all phases and subjects. We hope they will inspire you to develop and use similar strategies in other topics and curriculum areas. We want to encourage you to change them and adapt them to your classroom and students. We run teacher workshops, swapshops and conferences throughout the European Union. The project posts online many activities in all subject areas. An online newsletter is also updated regularly.

*These activities are influenced by current thinking about the role of language in learning. They are designed to help children learn through talk and active learning in small groups. They work best in non selective classes where children in need of language or learning support are integrated. They are well suited for the development of oracy. They provide teachers opportunities for assessment of talk.

*They support differentiation by placing a high value on what children can offer to each other on a particular topic, and also give children the chance to respect each other's views and formulate shared opinions which they can disseminate to peers. By helping them to take ideas and abstract concepts, discuss, paraphrase and move them about physically, they help to develop thinking skills.

*They give children the opportunity to participate in their own words and language in their own time without pressure. Many activities can be tried out in pupils' first languages and afterwards in English. A growing number of activities are available in more than one language, not translated, but mixed, so that you may need more than one language to complete the activity.

*They encourage study skills in context, and should therefore be used with a range of appropriate information books which are preferably within reach in the classroom.

*They are generally adaptable over a wide age range because children can bring their own knowledge to an activity and refer to books at an appropriate level. The activities work like catalysts.

*All project activities were planned and developed by teachers working together, and the main reason they are disseminated is to encourage teachers to work more effectively with each other inside and outside the classroom. They have made it possible for mainstream and language and learning support teachers to share an equal role in curriculum delivery. They should be adapted to local conditions. In order to help us keep pace with curriculum changes, please send any new or revised activities back to the project, so that we can add them to our lists of materials.

Square and a triangular number	Even and square number	Multiple of seven and square number
Multiple of three and even number	Prime number	Multiple of five
Multiple of five and an even number	Odd number	Square number
Multiple of three	Even number	Even and triangular number

Keep this margin to glue to the other half of the baseboard

Multiple of
five and an
odd number

Square and
a triangular
number

Multiple of
five and seven

Prime number

Multiple of
seven and a
triangular
number

Odd number

Multiple of
seven

Prime and a
triangular
number

Square and an
odd number

Multiple of
three and a
triangular
number

A triangular
number

Square
number

cut this margin off to make your baseboard

49

11

2

3

5

25

36

6

10

six

1

7

28

21

35

4

9

nine

Connect Four cards

49

11

2

3

5

25

36

6

10

six

1

7

28

21

35

4

9

nine

Connect Four cards

49

11

2

3

5

25

36

6

10

six

1

7

28

21

35

4

9

nine

Connect Four cards

HOW TO PLAY PROPERTIES OF NUMBER CONNECT FOUR

You need 4 people, one baseboard and two sets of cards (different colours.)

Work with a partner to make a team of two.

Shuffle your cards and place them in a pile facing down.

Take it in turn to turn over your top card and decide where to put it on the board.

The winning team gets four in row.

Before you start to play you should also :

Decide whether to have challenges or a checking system.

Decide what to do if there is no place for a card. For instance you can either not be able to put the card on the board, or you can cover a card already on the board. This makes the game last longer.

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Properties Puzzle

Prime	Square	Even	Odd	Triangular
Multiple of 3	Multiple of 5	Multiple of 7	1	2
3	4	5	6	7
9	10	11	21	25
28	35	36	49	

Cut up the numbers and properties. Place the properties across the top and down the left hand side of the grid. Arrange all the numbers in the grid so that their coordinates are true e.g. 49 is a multiple of seven and an odd number.

Properties Puzzle Answers!

	Prime	Triangular	Multiple of 7	Square
Multiple of 5	5	10	35	25
Odd	11	1	7	49
Even	2	36	28	4
Multiple of 3	3	6	21	9