

Adapting games to make connections

Marilyn Burns replied to a tweet this week reminding teachers of three issues essential to mathematics teaching from her article from 2007 “9 ways to catch kids up”.

These are:

- Help students make connections among mathematical ideas
- Build students’ new understandings on the foundation of their prior learning
- Students’ correct answers, without accompanying explanations of how they reason, are not sufficient for judging mathematical understanding

With these in mind, I started thinking about some of the mathematics games we play in the classroom. Many of these games have the potential to explore greater connections in mathematics instead of focusing on one concept/ strategy at a time. They also provide a platform for student reasoning as the games are generally easy to learn and the focus can be on discussing their moves. Here are a few ideas to get you going, I’m sure you can think of more ways to adapt these games and more!

SNAP to it!

We often play snap in the classroom as a basic number matching activity. This is also differentiated in many classrooms where the students make a snap with numbers before or after, or combinations to 10. To extend this game to combine a number of these concepts, have a separate stack of number cards (1-10) and turn one ‘target number’ over before the start of play, e.g. 8.

Students then play the snap game looking for a snap that relates to the number 8. This way students may snap seven and one (adding), a nine and one (subtraction), a two and a four (multiplying), two fours (adding or double or known combination). Students will need to verbalise why their cards are a match and the partner or other players need to agree. This reasoning could also be recorded at the end of each round. Playing this way means students draw on a range of prior knowledge to play the game assisting in building their concept of the target number.

Adaptation: Students can also wait for a third card to be played to make a snap or include single card snap for number before or after.

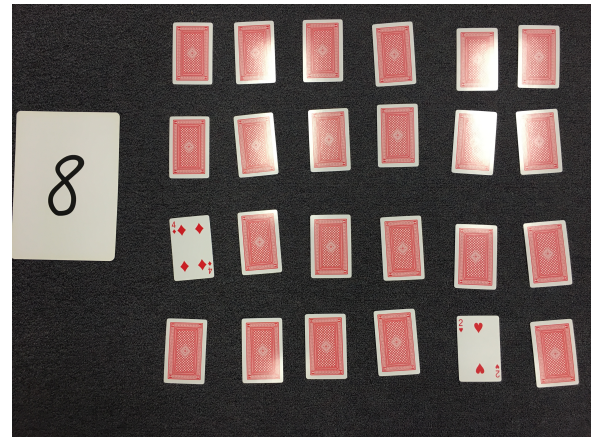


Note: You may have sets of cards that include 10s and above this would mean your range of numbers to make could be extended to 20

Also, for older students, they may be able to interpret Jack = 11, Queen = 12, King = 13

Number memory

Memory is another game played in the mathematics classroom that focuses on matching numbers to numbers or numbers to images or words. This game can be adapted similarly to the snap version above. Students still lay out the whole deck of cards face down in rows and columns. Have a separate stack of number cards (1-10) and turn one 'target number' over



before the start of play, e.g. 5. Students now play memory, turning over two cards at a time to see if they can make a match for five. For example, a student may turn over eight and three, using subtraction they can make 5 so they keep the pair of cards (also 9 and 4, 6 and 1 etc as they have a difference of 5). Another example may be that the student turns over one and five, using multiplication they can make 5 so they keep the pair of cards. Students could also pick up any single card that matches, as long as they can justify why, for example, 6 (number after), 4 (number before), 5 (exact match). Again, the idea of playing this way is to focus on the reasoning students provide for the match and for students to build connections between concepts.

Adaptation: Use one hundred cards or 1-50 number cards, or students could try turning over 3 cards

Note: Playing with one target number may take some time, for a quicker game you could choose 4 target numbers and allow students to select how their pair of cards match any of the target numbers.

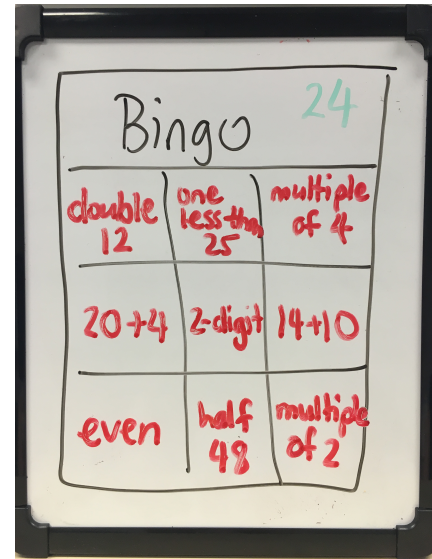
Match-up Bingo

Students may be familiar with playing Bingo in the classroom. You may have played bingo where students write numbers in a four by four grid and they are matching numbers before or numbers after to make four-in-a-row. You may play bingo where students write in multiples of 2 or 5 or 10 and the teacher calls out solutions that students then cover with counters to make four-in-a-row. There are many different ways to play bingo.

For this adaptation, all students are given target number, e.g.

24. All students write down mathematical ideas related to the number (using a three by three grid). Students may write

things like; multiple of 4, even number, number after 23, half of 48, it has two tens, a two-digit number, double 12 etc. Once all students have their 9 boxes filled one student brings their bingo sheet out the front. They then call out their ideas, the other students place a counter on their squares as there is a match. Students can call bingo! when they have three-in-a-row or when the whole card is filled - matching the student's card at the front. I recommend playing a few times with the same target number so various students can share their bingo card, this will allow students to hear and learn about other ways 24 can be made or build their concept of the number 24.



Adaptation: Students could work in pairs to create their bingo cards and discuss and justify why their idea works for the target number. This game can be extended for any K-8 class as students will develop different understandings, older students may start to recognise square numbers, prime, composite, factors, use percentages, fractions or negative numbers.

References

Burns, M. (2007). Nine ways to catch kids up. *Educational Leadership*, 65(3), 16.