Make an Organised List

**Numbers**
How many two digit numbers contain a 1 or a 2?

**Physical Education Class**
As part of their Physical Education course, Year Six students must select one indoor sport and one outdoor sport from the list given. How many possible combinations of sports are there to choose from?

**The Ice Cream Van**
An Icecream Van offers four flavours of icecream; chocolate, vanilla, strawberry, and lemon. Donna is allowed to pick two different flavours for her icecream. How many possible flavour combinations could she choose?

**Alex’s Travels**
Alex is travelling from A to his friend Peter’s house at P. How many different routes are there from A to P, assuming Alex always moves towards P?

**Seating Positions**
In how many ways can four friends Amy, Beth, Christine, and Deb sit in a row if Amy and Christine insist on sitting next to each other?

**Wei’s Money**
In his pocket Wei has a 5 cent coin, a 10 cent coin, a 20 cent coin and a 50 cent coin. How many different sums of money can he make using these four coins?

**Numbers**
How many two digit numbers are there in which the tens digit is less than the ones digit?

**Pentagons and Triangles**
How many triangles can be formed by joining three of the vertices of a pentagon?
The Handball Competition
At lunchtime Sita organises a Knockout Handball Competition with three of her friends, Julie, Penny and Wei.
- How many games are played in the competition?

Making Numbers
How many two digit numbers can be made using the digits 5, 6, 7, 8 and 9 at most once each?

Number Combos
Scott, Elizabeth and Richard are all trying to remember the 4 digit combinations for their school lockers.
- Scott remembers that his combination contains a 4, 5, 7 and 9, but cannot remember the order.
- How many possible combinations will he need to try?
- Elizabeth remembers that her combination contains two 5s, a 7, and an 8. How many possible combinations will she need to try?
- Richard remembers that his combination contains three 2s and a 6.
- How many possible combinations will he need to try?

The Corner Store
Cindy and her father are in the Corner Store. They are going to buy Cindy a pair of shorts and a T-Shirt. The store has in stock orange T-Shirts, blue T-Shirts and yellow T-Shirts for sale. The store has only two pairs of shorts in Cindy’s size. One pair has green dots on it and the other pair has red dots on it. What are the six different outfits that Cindy can buy?

Oscar the Ostrich
Oscar the Ostrich like to show off his long neck and legs. When he goes to town, he puts on a necktie and a pair of socks. Oscar has a blue necktie and a red necktie. He has a pair of orange socks, a pair of green socks and a pair of yellow socks. What are the six different sets of neckties and socks that Oscar can out on when he goes to town?

Breakfast Time
It is Breakfast Time in the Holly Home. There are three boxes of cereal on the table. There are oat flakes, bran flakes and corn flakes. When Harry Holly eats breakfast, he drinks one can of juice and eats one box of cereal. This morning, there’s a can of orange juice and a can of apple juice on the table. What are the six different types of breakfast that Harry Holly could have this morning?

Rubber Stamps
Mrs Smith has three rubber stamps. One for each letter A, B and C. She is making Maths Game Packets using two letters to label each packet.
**The Bumble Bee Balloon Factory**
The workers in the Bumble Bee Balloon Factory make many different kinds of balloons. Each balloon is round or shaped like a heart and is red, orange or yellow. Before the balloon leaves the factory, a worker paints a picture of a happy face or a bumble bee on it. What are all the different kinds of balloons that are made in the Bumble Bee Balloon Factory?

**Gary Goat**
Gary Goat went to the shops to buy a coat. He looked at a long coat and a short coat. He tried on a red coat and a blue coat. Then he bought the coat that he liked the best. It had eight buttons on it, it had red dots all over it and it did not have a pocket.
- Which coat did Gary Goat buy?
- Circle your choice.

**Jerry Sub Shop**
Jerry’s Sub Shop makes the best submarine sandwiches in Rockhampton. Look at the lists of good things Jerry puts on his sandwiches.

<table>
<thead>
<tr>
<th>Meats</th>
<th>Cheeses</th>
<th>Spreads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steak</td>
<td>Swiss</td>
<td>Mustard</td>
</tr>
<tr>
<td>Ham</td>
<td>American</td>
<td>Mayonnaise</td>
</tr>
<tr>
<td>Bologna</td>
<td></td>
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</tbody>
</table>

You ask Jerry to make a sandwich with one kind of meet, one kind of cheese and one kind of spread on it. What are all the different sandwiches Jerry could make for you?

**Cars for Kings**
The Cars for Kings company is putting out new models. They want to put a three digit number on the back of each new car model. They have decided to use only the numerals 2, 5 and 7. Each numeral can only be used once in a number. How many different numbers can the company put on the back of the new model cars?
Guido the Chef
Guido the Chef can prepare three different dishes, soup beef and olive. He must decide which two to serve at the meal. In how many different ways can he choose?

Angelina’s Club
Angelina’s Club is having a meeting. They have decided that everyone should have a secret number. They will use just the numerals 1, 3 and 5 in their numbers, but each number will be different. Each numeral can be used only once in any number. If they use all the different three digit numbers that you can make with the numerals 1, 3 and 5, how many members does Angelina’s Club have?

Marlo’s Ice Cream Shop
Laura is buying a sundae at Marlo’s Ice Cream Shop. She wants one scoop of ice cream, one kind of sauce and one kind of topping. Here are the flavours of ice cream and kinds of sauces and toppings Laura can choose from.

<table>
<thead>
<tr>
<th>Ice Cream</th>
<th>Sauces</th>
<th>Toppings</th>
</tr>
</thead>
<tbody>
<tr>
<td>peanut butter</td>
<td>caramel</td>
<td>nuts</td>
</tr>
<tr>
<td>chocolate</td>
<td>chocolate</td>
<td>coconut</td>
</tr>
<tr>
<td></td>
<td>strawberry</td>
<td></td>
</tr>
</tbody>
</table>

What are all the different sundaes that Laura could order?

Alice’s Snapshots
Alice has three favourite snapshots. In how many ways can Alice choose two or three of her snapshots for her double frame? One snapshot goes on the left and one goes on the right so the order of the snapshots chosen is important.
- If the order doesn’t matter, how many different combinations can be put in the double frame?

Summer Camp
For Summer Camp, you can wear your sweatshirt, T-Short or tank top. You also have a choice of shorts, cargo pants or jeans. How many different combinations can you wear?

When the packets are passed out, what is the chance you will get a packet marked BA?

Kisses
Ten people arrive at a party. As they arrive, each person kisses every other person twice, once on each cheek. How many kisses are there?
The Card Party
Ann is organising a card party and invites two of her friends to play. They each invite two other children.
- How many people will be playing cards?

A Trip to the Movies
At the movies, you can choose two items for your Kid Pack. Your choices are popcorn, soda and candy. How many different Kid Packs can be made with the choices below?
- Popcorn: Cheese popcorn or buttered popcorn
- Soda: Sprite or Coke
- Candy: Twizzlers or M&Ms

Linen Shop or Pizzeria
A linen shop sells sheets, duvet covers, and pillow cases. Linens from the Easirest Company offer a choice in each colour; a plain sheet or a sheet with a pattern, a plain duvet cover or a duvet cover with a pattern, plain pillow cases or pillow cases with a pattern. Customers may mix and match the plain or patterned sheets, duvet covers, and pillow cases in any combination they wish. To help the shop make its next order from the Easirest Company, you have been asked to make a record of the different combinations that customers have chosen.
- How many different combinations are possible?
- Some students might be more interested in pizza. The same problem might occur in a Pizzeria.

Dominoes
The game of dominoes is played with black and white tiles. Each tile is divided into two halves and on each half a number from 0 to 6 is represented in the form of dots. Each tile contains a pair of numbers and each pair appears only once in a complete set.
- How many tiles are there in a complete set of tiles?

Get Well Soon
Melike and Funda are good friends. When Melike got the flu, her doctor wrote a prescription for twenty 30mg pills, and told her to take two a day, one after breakfast and one after dinner. Three days later, Funda also got the flu. Her doctor prescribed thirty 20mg pills, and told her to take a pill every four hours between 9:00 a.m. and 21:00 p.m. Whose medicine was finished first?
David's Trophies
David has three trophies. One is for football, one is for baseball, and one is for quiz bowl. He wants to display the trophies on a shelf.
- How many different ways can the trophies be arranged on the shelf?

Activity Day
At the annual school Activity Day, the students used spinners to determine the activity they would play and how many attempts they would get at the station.

- What is the chance that you would have four attempts to dunk the Principal?

David's Rabbits
David had two rabbits, a male and a female. David's rabbits then had four female baby rabbits. Each of these babies grew up and gave birth to five rabbits. How many rabbits did David have in the end?

The New Baby
Christina and Alex have a new baby boy but they can't decide what to name him. There are three names they like, Joe, Paul and George, but they only want to give the baby two names. What different choices do they have?

Angela's Sandwiches
Angela's father is making her a sandwich to take to school for lunch. She is allowed to have two things on her sandwich and she can choose from cheese, tomato, lettuce and ham. How many choices does she have?

The Ling Family
Mr and Mrs Ling have four children. Each of their four children has two children of their own. How many grandchildren do the Lings have?

Posters
Lisa has three posters that she would like to put on her door, but only two will fit, one above the other. One is green, one is red and one is blue. How many different ways can she arrange the posters on her door?
Marbles in the Jar
Three marbles are in a jar. One red marble, 1 blue marble and 1 green marble. In how many different orders can you take the marbles out of the jar?

Arranging Letters
How many ways can you arrange the letters A, B, C and D? Continue the list to find all the ways.

<table>
<thead>
<tr>
<th>ABCD</th>
<th>ABDC</th>
<th>ACBD</th>
<th>ACDB</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADBC</td>
<td>ADCB</td>
<td>BACD</td>
<td>BADC</td>
</tr>
</tbody>
</table>

Beth’s Mother
Beth’s mother told her that she can choose four books from the school’s Book Fair. There are six books that Beth would like to have. How many different combinations of four books could Beth choose from those six?

School Leader Elections
Hunter and Olivia are running for the position of School Captains. Taylor and Liam are running for the positions of Vice School Captains. How many different combinations of students can be elected as School Captains and Vice School Captains?

Tori’s Socks
Tori thinks socks that match are boring. She likes to wear two different coloured socks at the same time.
- Tori has six pairs of socks.
- One pair has green stripes.
- One pair has red polka dots.
- She has socks with purple stars.
- She has socks with blue squares.
- One pair has yellow flowers.
- Her favourite pair has orange pumpkins.

Make a list to show all the possible combinations Tori could use. You may want to use R for Red, G for Green, S for Stars, etc.

Baseball Caps
Dave has six baseball caps. He has four football shirts. He likes to wear a new combination of a cap and shirt each day. Make a list to show all the possible combinations of caps and shirts he could wear. Hint … use letters for the caps and numbers for the shirts. (eg; A and 1, A and 2, etc.)