

Activities Solutions

Problem 1: Justin is forming a team of people to work on the upcoming dance. Four students: Abby, Bailey, Chris, and Dallas have volunteered to serve on the committee of three, where everyone will share the duties to see that the dance takes place. If Justin wants to make up committees of three persons from the four volunteers, how many committees can Justin form? Colored cubes (or capital letters) are used to represent each person: Abby (white-A), Bailey (blue-B), Chris (red-C), Dallas (yellow-D). Use cubes to show the various committees of three persons that can be formed from the four people.

ABC ABD ACD BCD

Problem 2: Justin is forming a team of people to work on the upcoming dance. Four students: Abby, Bailey, Chris, and Dallas have volunteered to serve on the committee. This time one person will be the chairperson, one the secretary, and finally the third person will be the treasurer. If Justin wants to make up committees of three persons from the four volunteers, how many committees can Justin form? Colored cubes (or capital letters) are used to represent each person: Abby (white-A), Bailey (blue-B), Chris (red-C), Dallas (yellow-D). Use cubes to show the various committees of three persons that can be formed from the four people.

ABC	ABD	ACD	BCD
ACB	ADB	ADC	BDC
CAB	DAB	DAC	DBC
CBA	DBA	DCA	DCB
BAC	BDA	CAD	CBD
BCA	BAD	CDA	CDB

Problem 3: Paige is putting a fruit salad together. For the fruit salad Paige has a choice of five ingredients: apples, bananas, cherries, dates, and grapes. Let a colored cube (or capital letter) represent each fruit: apples (White-A), bananas (Yellow-B), cherries (Red-C), dates (Black-D), and grapes (Purple-G). Paige decides that he will make the salad with two fruits. Use the cubes to show how many types of fruit salads he can make.

AB AC AD AG BC BD BG CD CG DG

Problem 4: A bicycle lock is made up a two digit number such as 12 or 34. For security reasons, no double digits are allowed such as 11 or 22. Each digit can be any of the digits 1-5. Let each digit be represented by one colored cube (or just itself): 1(white-1), 2(yellow-2), 3(red-3), 4(black-4), and 5(purple-5). Use the cubes to show all the different lock numbers that can be made using the five digits.

12	13	14	15	23	24	25	34	35	45
21	31	41	51	32	42	52	43	53	54