Reasoning and Problem Solving
Step 1: Months and Years

National Curriculum Objectives:

Mathematics Year 3: (3M4e) Know the number of seconds in a minute and the number of days in each month, year and leap year

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Decide which of three statements are always true, sometimes true or never true. Involves the number of days in each month, year and leap year.
Expected Decide whether four statements are always true, sometimes true or never true. Involves the number of days in each month, year and leap year in different formats.
Greater Depth Decide whether four statements are always true, sometimes true or never true. Involves the number of days in each multiple months, years and leap years in different formats.

Questions 2, 5 and 8 (Reasoning)
Developing Decide which of three options is the odd one out. Explain why. Involves the number of days in each month, year and leap year.
Expected Decide which of three options is the odd one out. Explain why. Involves the number of days in each month, year and leap year in different formats.
Greater Depth Decide which of three options could be the odd one out. Involves the number of days in each multiple months, years and leap years in different formats.

Questions 3, 6 and 9 (Problem Solving)
Developing Complete 4 pieces of missing information about dates of birth. Information presented in the order it should be used.
Expected Complete 5 pieces of missing information about dates of birth.
Greater Depth Complete 5 pieces of missing information about dates of birth. Involves leap years and some addition and subtraction.

More Year 3 Time resources.

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Months and Years

1a. Decide which statement is always true, sometimes true or never true.

A. There are 12 months in a year
B. May is longer than August
C. February has 28 days

Explain your reasoning.

D R

Months and Years

1b. Decide which statement is always true, sometimes true or never true.

A. December is the 12th month of the year
B. September has 31 days
C. A year has 365 days

Explain your reasoning.

D R

2a. Which card is the odd one out?

Explain your reasoning.

October

November

January

D R

2b. Which card is the odd one out?

Explain your reasoning.

365 days

A leap year

A non-leap year

D R

3a. Complete the table about the siblings' dates of birth using the information below.

Carla		30	/		/	2001
		11	/	5	/	2007
Georgi			/		/	2003

Georgi's birthday is 12th May.
Ishmael's birthday is the day before Georgi's.
Carla's birthday is in November.

D PS

3b. Complete the table about the siblings' dates of birth using the information below.

		30	/	4	/	2008
Kai		3	/		/	2001
		30	/	1	/	2008

Neale's birthday is on the last day of the month.
Kai's birthday is on the third day of June.
Nour was born in the same year as Neale.

D PS

Months and Years

4a. Are the following statements always true, sometimes true or never true?

A. March has 31 days
B. April has 31 days
C. January has more days than February
D. 28th February is the last day in February

Explain your reasoning.

E R

Months and Years

4b. Are the following statements always true, sometimes true or never true?

A. March and April have the same number of days
B. February is the shortest month
C. 31st May is the last day in May
D. 1st March comes after 28th February

Explain your reasoning.

E R

5a. Which card is the odd one out?

Explain your reasoning.

- January
- June
- The 3rd month of the year

E R

5b. Which card is the odd one out?

Explain your reasoning.

- The month after September
- November
- The 9th month of the year

E R

6a. Complete the table about the siblings' dates of birth using the information below.

		/	1	/	2008
		/	4	/	2005
Michael	5	/		/	2010

Katie's birthday is on the first day of a month with seven letters.
Phillipa is the eldest.
Phillipa birthday is on the 2nd.
Michael was born in the same month as Katie.

E PS

6b. Complete the table about the siblings' dates of birth using the information below.

		/	7	/	2006
Yasmin	8	/	10	/	2006
		/		/	2003

Yasmin was born in the same year as Fahad.
Fahad's birthday is on 4th of the month.
Mina is the eldest. Her birthday is 2 days before Yasmin's.

E PS

Months and Years

7a. Are the following statements always true, sometimes true or never true?

A. There are 62 days in total in November and December.
B. There are 366 days in 2020
C. There are 90 days in 3 consecutive months
D. The day before 1st September is 31st August

Explain your reasoning.

GD R

Months and Years

7b. Are the following statements always true, sometimes true or never true?

A. There are 732 days in 2 consecutive years
B. A week after 25th February will be 4th March
C. There are 60 months in 5 years
D. A leap year comes before a non-leap year

Explain your reasoning.

GD R

8a. Which card is the odd one out?

Explain your reasoning.

- 61 days
- The 9th and 10th months of the year
- July and August

GD R

8b. Which card is the odd one out?

Explain your reasoning.

- The year 2016
- 365 days
- The year 2015

GD R

9a. Complete the table about the siblings' dates of birth using the information below.

	12	/	3	/	2001
Sarah		/		/	2009
	4	/		/	2008

Sarah's birthday is 9 days before Jilani's.
Jilani was born in a leap year.
Jilani's birthday is in the month before Kyle's.
Kyle is the eldest.

GD PS

9b. Complete the table about the siblings' dates of birth using the information below.

Mateo	30	/		/	1999
		/		/	2012
Cara		/	2	/	2008

Mateo's birthday is the fourth month of the year.
Harry's birthday is 2 weeks after Mateo's.
Cara's birthday is on the last day of the month in a leap year.
Harry is the youngest.

GD PS

Reasoning and Problem Solving
Months and Years

Developing

1a. Always true – A (the total number of months in a year is 12)
Sometimes true – C (on non-leap years it has 28 days, on leap years it has 29 days)
Never true – B (May and August have 31 days)

2a. November because the other two months have 31 days.

3a.

Carla	30	/	11	/	2001
Ishmael	11	/	5	/	2007
Georgi	12	/	5	/	2003

Expected

4a. Always true – A, C (March has 31 days; January has 31 days which is more than 28 or 29 days in February)
Sometimes true – D (Only on non-leap years)
Never true – B (April has 30 days)

5a. June because the other two months have 31 days.

6a.

Katie	1	/	1	/	2008
Phillipa	2	/	4	/	2005
Michael	5	/	1	/	2010

Greater Depth

7a. Always true – B, D (2020 is a leap year; 1st September follows 31st August)
Sometimes true – C (January, February and March on non-leap years and February, March, April on leap years)
Never true – A (there are 61 days in total)

8a. July and August because the other two cards have 61 days.

9a.

Kyle	12	/	3	/	2001
Sarah	26	/	1	/	2009
Jilani	4	/	2	/	2008

Reasoning and Problem Solving
Months and Years

Developing

1b. Always true – A (December is the 12th month out of 12)
Sometimes true – C (A non-leap year has 365 days, a leap year has 366)
Never true – B (September has 30 days)

2b. A leap year because the other two cards have 365 days.

3b.

Neale	30	/	4	/	2008
Kai	3	/	6	/	2001
Nour	30	/	1	/	2008

Expected

4b. Always true – B, C (February is the shortest month as it only has 28 or 29 days; May has 31 days)
Sometimes true – D (Only on non-leap years)
Never true – A (March has 31 days, April has 30 days)

5b. The month after September (October) because the other two months have 30 days.

6b.

Fahad	4	/	7	/	2006
Yasmin	8	/	10	/	2006
Mina	6	/	10	/	2003

Greater Depth

7b. Always true – C (12 x 5 = 60)
Sometimes true – B, D (only on a non-leap year; a leap year also comes after a non-leap year)
Never true – A (if it included a leap year it would only be 731)

8b. The year 2016 because the other two cards are non-leap years.

9b.

Mateo	30	/	4	/	1999
Harry	14	/	5	/	2012
Cara	29	/	2	/	2008