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| Multiplication progression |  |  |
| Knowledge | Grade level/Outcome | Strategy |
| 1. Double 1 digit  (6, 7…) | 1(N9) 2(N9) 2(N10) 3(N9) 3 (N10) 4 (N3) | Show 2 hands, 2 dot cards with same number of dots, linking cubes or rekenrek |
| 2. Double multiples of 10  (60, 70, 80, …) | 3(N9) 3 (N10) 4 (N3) | From knowing place value  6 tens + 6 tens = 12 tens = 120 |
| 3. Double teen numbers  (16, 17, 18, …) | 2(N9) 2(N10) 3(N9) 3 (N10) 4 (N3) | By adding tens with tens and ones with ones |
| 4. Double 2-digit numbers  (45, 36, 48, …) | 3(N9) 3 (N10) 4 (N3) | By adding tens with tens and ones with ones |
| 5. Double multiples of 100  (600, 700, …) | 4 (N3) | From knowing place value |
| 6. Double 3-digit numbers with 2 non-zero digits  (450, 760, …) | 4 (N3) | By adding hundreds with hundreds and tens with tens |
| 7. Double 4-digit numbers with 2, non-zero digits  (3600, 2700, …) |  | By adding thousands with thousands and hundreds with hundreds |
| 8. Multiplication by 2 | 3 (N11) 4 (N5) | Double |
| 9. Multiplication by 4 | 3 (N11) 4 (N5) | Double, double |
| 10. Multiplication by 8 | 4 (N5) | Double, double, double |
| 11. Multiplication by 10 | 4 (N5) | By using place value  6 x 10 = 6 x 1 ten = 6 tens which is 60 |
| 12. Multiplication by 9 | 4 (N5) | By comparing to multiplication by 10, 1 group less |
| 13. Multiplication by 5 | 4 (N5) | By comparing to multiplication by 10, taking half |
| 14. Multiplication by 3 | 4 (N5) | One more group than multiplication by 2 |
| 15. Multiplication by 6 | 4 (N5) | Double multiplication by 3 |
| 16. Multiplication by 7 | 4 (N5) | 7 x 7 memorize or could use (5 x 7) + (2 x 7) |
| 17. All basic multiplication facts | 4(N5) 5 (N3) |  |
| 18. Multiple of 10 x single digit (mentally and orally)  (20 x 6, 30 x 7) | 4 (N6) | Place value – 2 tens x 6 = 12 tens = 120 |
| 19. Two-digit number by 1-digit  (mentally and orally)  (26 x 6) | 4 (N6) | Multiply the tens first, then the ones and add |
| 19A. Mental math strategy x 5 |  |  |
| 20. Three-digit multiple of 100 by single-digit number  (mentally and orally)  (400 x 7) | 4 (N6) | Place value – 4 hundreds x 7 = 28 hundreds = 2800 |
| 21. Three-digit number with 2 non-zero digits by 1-digit number  (orally)  (250 x 6), (205 x 6) | 4 (N6) | By multiplying 200 x 6 first, then 50 x 6 and finding the sum |
| 21B. Two and three-digit numbers x 10  34 x 10, 456 x 10 |  |  |
| 22. Three-digit number by 1 digit number  (Use written model)  (256 x 7) | 4 (N6) | |  | | --- | | 200 x 7 | | 50 x 7 | | 6 x 7 | |
| 23. Two-digit multiple of 10 x two-digit multiple of 10  (orally and mentally)  (20 x 40) | 5 (N5) | Place value  2 tens x 4 tens  2 tens x 4 = 8 tens  8 tens x tens = 8 hundreds  Or  Think of 20 x 40 as (2 x 10) + (4 x 10), 2 x 4 = 8, 10 x 10 = 100, 8 x 100 = 800 |
| 24. Two-digit number x two-digit multiple of 10  (Use written model)  (26 x 40) | 5 (N5) | |  |  | | --- | --- | | 20 x 40 | 6 x 40 |   Find the sum of both products. |
| 25. Two-digit number x two-digit number  (Use written model)  (26 x 44) | 5 (N5) | |  |  | | --- | --- | | 20 x 40 | 20 x 4 | | 6 x 40 | 6 x 4 |   Find the sum of the 4 products. Add top right hand corner and bottom left hand corner first. (both multiples of 10) |
| 25A. Mental math strategy 2-digit by 2-digit  25 x 16, 50 x 18 | 5 (N5) |  |
| 25B, Mental math strategy – compensation  9 x 35 |  | Think of 10 x 35 and then subtract 1 group of 35 |
| 26. To help reinforce place value, get students to multiply large numbers.  (5000 x 6, 12 000 x 7…) | 6(N8) | Place value knowledge |
| 27. Tenths x ones  (0.8 x 8)  (mentally and orally) | 6(N8) | Place value knowledge  8 x 8 tenths = 64 tenths, which is 6.4 |
| 27A. Tenths x multiple of 10  0.8 x 50 | 7(N2) | Place value |
| 27B. Ones and tenths x ones  5.5 x 7 | 6(N8) |  |
| 27C. Tenths x multiple of 100 | 7(N2) | Place value |
| 28. Hundredths x ones  (0.08 x 7)  (mentally and orally) | 6(N8) | Place value knowledge  7 x 8 hundredths = 56 hundredths, which is 0.56 |
| 28A. multiples of 10 x hundredths | 7(N2) | Place value |
| 28AA. Multiples of 100 x hundredths | 7(N2) | Place value |
| 28B. Ones x tenths and hundredths  3 x 0.65 | 6(N8) |  |
| 28C. Ones x ones, tenths and hundredths  3 x 4.56 | 6(N8) |  |
| 29. Thousandths x ones  (0.008 x 6)  (mentally and orally) | 6(N8) | Place value knowledge  6 x 8 thousandths = 48 thousandths, which is 0.048 |
| 30. Tenths x tenths  O.6 x 0.5 | 7(N2) | |  |  | | --- | --- | | 0.7 x 8 | 0.06 x 8 |   Find the sum of both numbers. |
| 31. Number with tenths and hundredths x tenths  0.54 x 0.6 | 7(N2) |  |
| 32. Number with ones and tenths x another number with ones and tenths  3.4 x 5.6 | 7(N2) |  |
| 33. Two-digit whole number x decimal  16 x 0.45, 96 x 0.5 | 7(N2) |  |
| 34. Money questions 6,50 x 9 | 6(N8) |  |
| 35. x 0,5 x | 6(N8) | Find half of the other number |
| 36. x 1.5 x2.5 x 3.5  Ex. 1.5 x 12 = 18  (mental math) | 6(N8) | Strategy of 1 times the whole number and half of the number  1 x 12 plus 0.5 x 12 |
| 37. x 0.25  Ex. 0.25 x 16  (mental math) | 7(N2) | Find one quarter of the number |
| 38. Place value  6 thousandths x 8  7 hundreds x \_\_\_\_\_\_ = 42 | 7 | Think of 6 x 8 and then 1000 smaller or use place value language: 6 thousandths x 8 = 48 thousandths which is 0.048 |