

Year 1 and Year 2 Multiplication, Division and Money, Unit 1 (12894)

Additional teacher instructions for practice sheets

These notes indicate which practice sheets are most appropriate for which groups.

Day 1 Y1 Doubling Sheet 1

Working towards ARE / Working at ARE

Children can use cubes or number shapes.

Day 1 Y1 Doubling Sheet 2

Greater Depth

Day 1 Y2 Mystery machine doubling and halving Sheet 3

Working towards ARE

Day 1 Y2 Mystery machine doubling and halving Sheet 4

Working at ARE / Greater Depth

Day 2 Y1 Halving Sheet 1

Working towards ARE / Working at ARE

Children can use cubes or number shapes.

Day 2 Y1 Halving Sheet 2

Greater Depth

Day 2 Y2 Halving investigation Sheet 3

Working towards ARE / Working at ARE / Greater Depth

Working towards ARE find which number between 80 and 90 produces the longest chain (to avoid halving numbers with odd 10s digits).

Doubling

Sheet 1

Double the following numbers by writing out the addition sentence.

1. $4 + 4 = 8$

2. $8 + 8 = \square$

3. 6

4. 10

5. 5

6. 9

7. 7

8. 11

Challenge

9. 14

10. 15

11. 12

12. 13

Doubling

Sheet 2

Double the following numbers by writing out the addition sentence.

1. $4 + 4 = 8$

2. 9

3. 7

4. 12

5. 15

6. 14

7. 13

8. 21

Challenge

9. 19

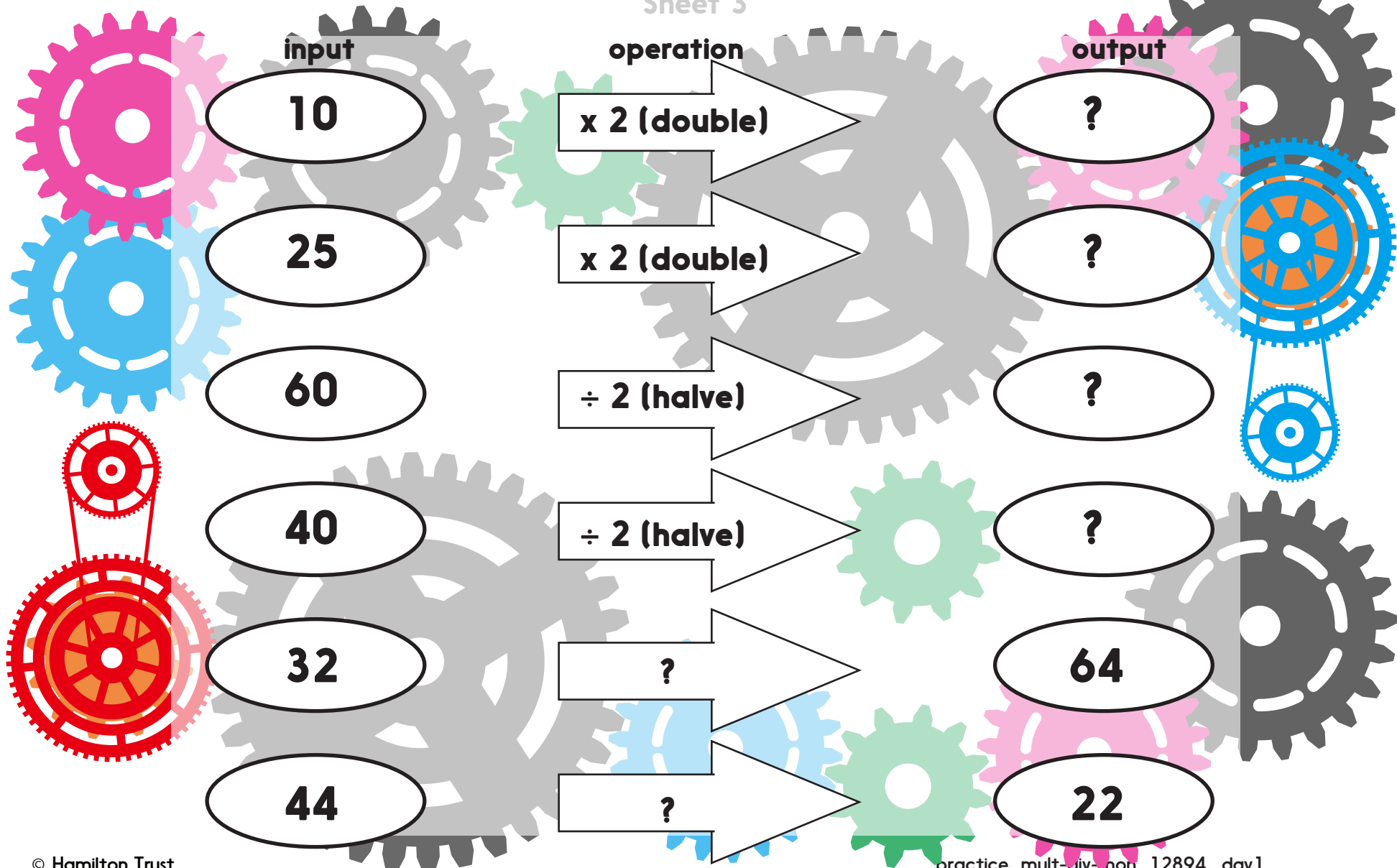
10. 17

11. 16

12. 18

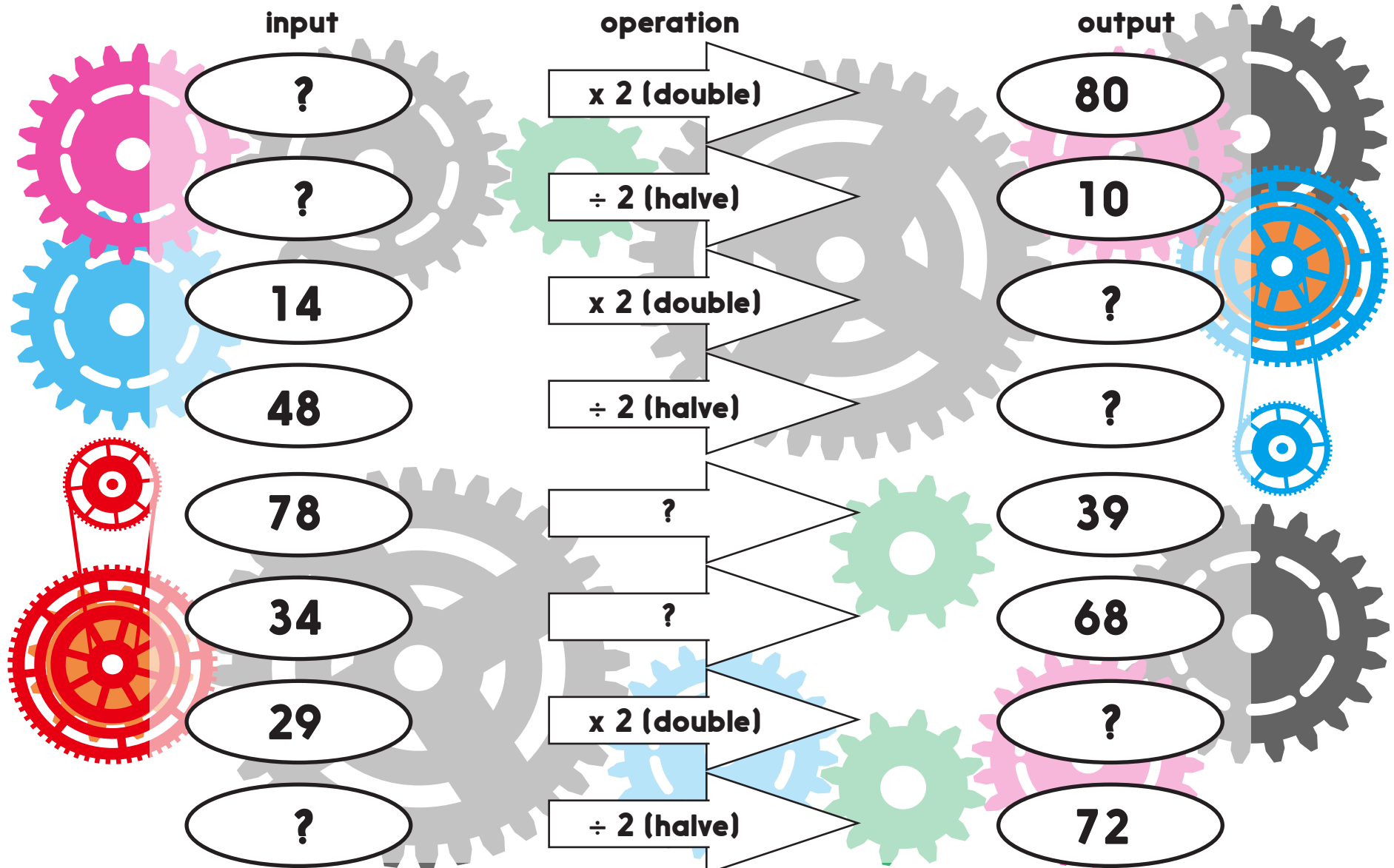
Mystery machine doubling and halving

Sheet 3



Mystery machine doubling and halving

Sheet 4



Halving

Sheet 1

Halve the following numbers:

1. 4 Half of 4 is 2.

2. 8 Half of is .

3. 6

4. 10

5. 12

6. 18

7. 16

8. 20

Challenge

9. 14

10. 22

Halving

Sheet 2

Halve the following numbers:

1. 12 Half of 12 is 6

2. 18

3. 16

4. 20

5. 14

6. 22

7. 26

8. 30

Challenge

9. 28

10. 32

Halving investigation

Sheet 3

1. With a partner choose a 2-digit number, e.g. 42.
2. If it is even, halve it.
If it is odd, add 1.
3. Decide if your answer is even or odd.
If it's even, halve it, and if it's odd, add 1.
4. Keep going until you reach the number 1.
Record your chain of numbers as you go.
5. Try to produce the longest chain that you can!

E.g.

$42 \rightarrow 21 \rightarrow 22 \rightarrow 11$

$\rightarrow 12 \rightarrow 6 \rightarrow 3 \rightarrow 4$

$\rightarrow 2 \rightarrow 1$

Challenge

- a) What is the longest possible chain of all even numbers (not including the final '1')?
- b) Having created lots of chains, do you notice any patterns? For example, do any sequences of numbers appear often or are all chains completely different...?

Multiplication, Division and Money

Answers

Day 1 Y1 Doubling Sheet 1

1. $4 + 4 = 8$
2. $8 + 8 = 16$
3. $6 + 6 = 12$
4. $10 + 10 = 20$
5. $5 + 5 = 10$
6. $9 + 9 = 18$
7. $7 + 7 = 14$
8. $11 + 11 = 22$

Challenge

9. $14 + 14 = 28$
10. $15 + 15 = 30$
11. $12 + 12 = 24$
12. $13 + 13 = 26$

Day 1 Doubling Sheet 2

1. $4 + 4 = 8$
2. $9 + 9 = 18$
3. $7 + 7 = 14$
4. $12 + 12 = 24$
5. $15 + 15 = 30$
6. $14 + 14 = 28$
7. $13 + 13 = 26$
8. $21 + 21 = 42$

Challenge

9. $19 + 19 = 38$
10. $17 + 17 = 34$
11. $16 + 16 = 32$
12. $18 + 18 = 36$

Day 1 Y2 Mystery machine doubling and halving Sheet 3

<i>Input</i>	<i>Operation</i>	<i>Output</i>
10	x2 (double)	20
25	x2 (double)	50
60	÷2 (halve)	30
40	÷2 (halve)	20
32	x2 (double)	64
44	÷2 (halve)	22

Multiplication, Division and Money

Answers

Day 1 Y2 Mystery machine doubling and halving Sheet 4

<i>Input</i>	<i>Operation</i>	<i>Output</i>
40	x2 (double)	80
20	÷2 (halve)	10
14	x2 (double)	28
48	÷2 (halve)	24
78	÷2 (halve)	39
34	x2 (double)	68
29	x2 (double)	58
144	÷2 (halve)	72

Day 2 Y1 Halving Sheet 1

- 4 Half of 4 is 2
- 8 Half of 8 is 4
- 6 Half of 6 is 3
- 10 Half of 10 is 5
- 12 Half of 12 is 6
- 18 Half of 18 is 9
- 16 Half of 16 is 8
- 20 Half of 20 is 10

Challenge

- 14 Half of 14 is 7
- 22 Half of 22 is 11

Day 2 Y1 Halving Sheet 2

- 12 Half of 12 is 6
- 18 Half of 18 is 9
- 16 Half of 16 is 8
- 20 Half of 20 is 10
- 14 Half of 14 is 7
- 22 Half of 22 is 11
- 26 Half of 26 is 13
- 30 Half of 30 is 15

Challenge

- 28 Half of 28 is 14
- 32 Half of 32 is 16

Multiplication, Division and Money

Answers

Day 2 Y2 Halving investigation Sheet 3

The longest chains are given by larger 2-digit odd numbers.

e.g. 23 (+1) 24 (halve) 12 (halve) 6 (halve) 3 (+1) 4 (halve) 2 (halve) 1
has a shorter chain than 99.

99 (+1) 100 (halve) 50 (halve) 25 (+1) 26 (halve) 13 (+1) 14 (halve) 7 (+1) 8
(halve) 4 (halve) 2 (halve) 1

Challenge

- The longest possible all even chain is $64 - 32 - 16 - 8 - 4 - 2 - (1)$
- Can children describe their observations clearly and begin to reason about/explain why these patterns exist?