1) Estimate the size of each shape on this grid, in squares:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | $\mathbf{a}$ |  |  |  |  |  | $\mathbf{b}$ |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |


|  |  |  |  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | $c$ |  |  |  |  |  |  | $\mathbf{d}$ |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

2) On squared paper, draw an irregular shape with an estimated area of $9 \mathrm{~cm}^{2}$.
3) On squared paper, draw a series of circles which have areas of approximately:
a) $12 \mathrm{~cm}^{2}$
b) $28 \mathrm{~cm}^{2}$
c) $50 \mathrm{~cm}^{2}$
4) Look at this map of a penguin enclosure:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  | rocks |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | pool |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |



## Caryn says,

"I estimate the pool and rocks together have an area of $30 \mathrm{~m}^{2}$."
"I think the pool, on its own, has an area of around $29 \mathrm{~m}^{2}$."

Who do you agree with?
Explain the mistake that one
of the children has made.

1) Estimate the size of each shape on this grid, in squares:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


|  |  |  |  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | $c$ |  |  |  |  |  |  | $\mathbf{d}$ |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

2) On squared paper, draw an irregular shape with an estimated area of $9 \mathrm{~cm}^{2}$.
3) On squared paper, draw a series of circles which have areas of approximately:
a) $12 \mathrm{~cm}^{2}$
b) $28 \mathrm{~cm}^{2}$
c) $50 \mathrm{~cm}^{2}$
4) Look at this map of a penguin enclosure:


Caryn says,
"I estimate the pool and rocks
together have an area of $30 \mathrm{~m}^{2}$."
"I think the pool, on its own, has an area of around $29 \mathrm{~m}^{2}$."

Who do you agree with?
Explain the mistake that one
of the children has made.

1) Twinkl Zoo is opening a new area. On their planning map, the designers have shaded this irregular shape where building can take place.


Each square represents $10 \mathrm{~m}^{2}$.

They would like to open a $120 \mathrm{~m}^{2}$ penguin enclosure and a $70 \mathrm{~m}^{2}$ otter enclosure, both with curved walls.

Plan where the 2 enclosures could fit.
Remember there will need to be space between them.
2) Challenge: design your own zoo enclosure layout made up of irregular shapes on squared paper.

- Each square represents $1 \mathrm{~m}^{2}$.
- At least $120 m^{2}$ must be open area for animals to roam.
- At least $20 \mathrm{~m}^{2}$ must be indoor pens.
- At least $20 m^{2}$ must be water.
- You need to allow space for visitors to move around the area.


1) Twinkl Zoo is opening a new area. On their planning map, the designers have shaded this irregular shape where building can take place.


Each square represents $10 \mathrm{~m}^{2}$.

They would like to open a $120 \mathrm{~m}^{2}$ penguin enclosure and a $70 \mathrm{~m}^{2}$ otter enclosure, both with curved walls.

Plan where the 2 enclosures could fit.
Remember there will need to be space between them.
2) Challenge: design your own zoo enclosure layout made up of irregular shapes on squared paper.

- Each square represents $1 \mathrm{~m}^{2}$.
- At least $120 m^{2}$ must be open area for animals to roam.
- At least $20 m^{2}$ must be indoor pens.
- At least $20 m^{2}$ must be water.
- You need to allow space for visitors to move around the area.


