

Introduction to

Programming with R

Visualizing Data

ggplot2

Grammar of Graphics

Data

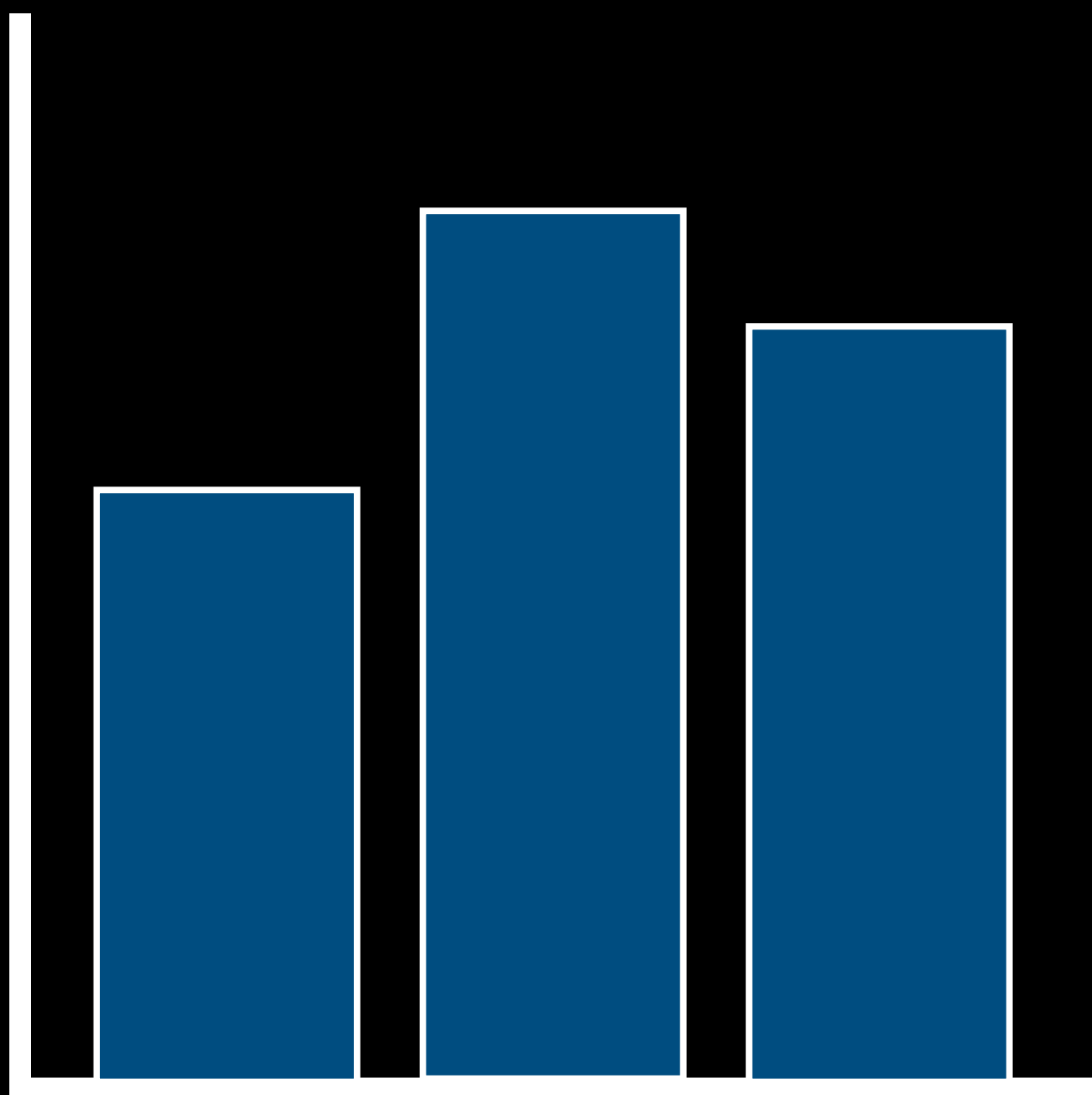
candidate

votes

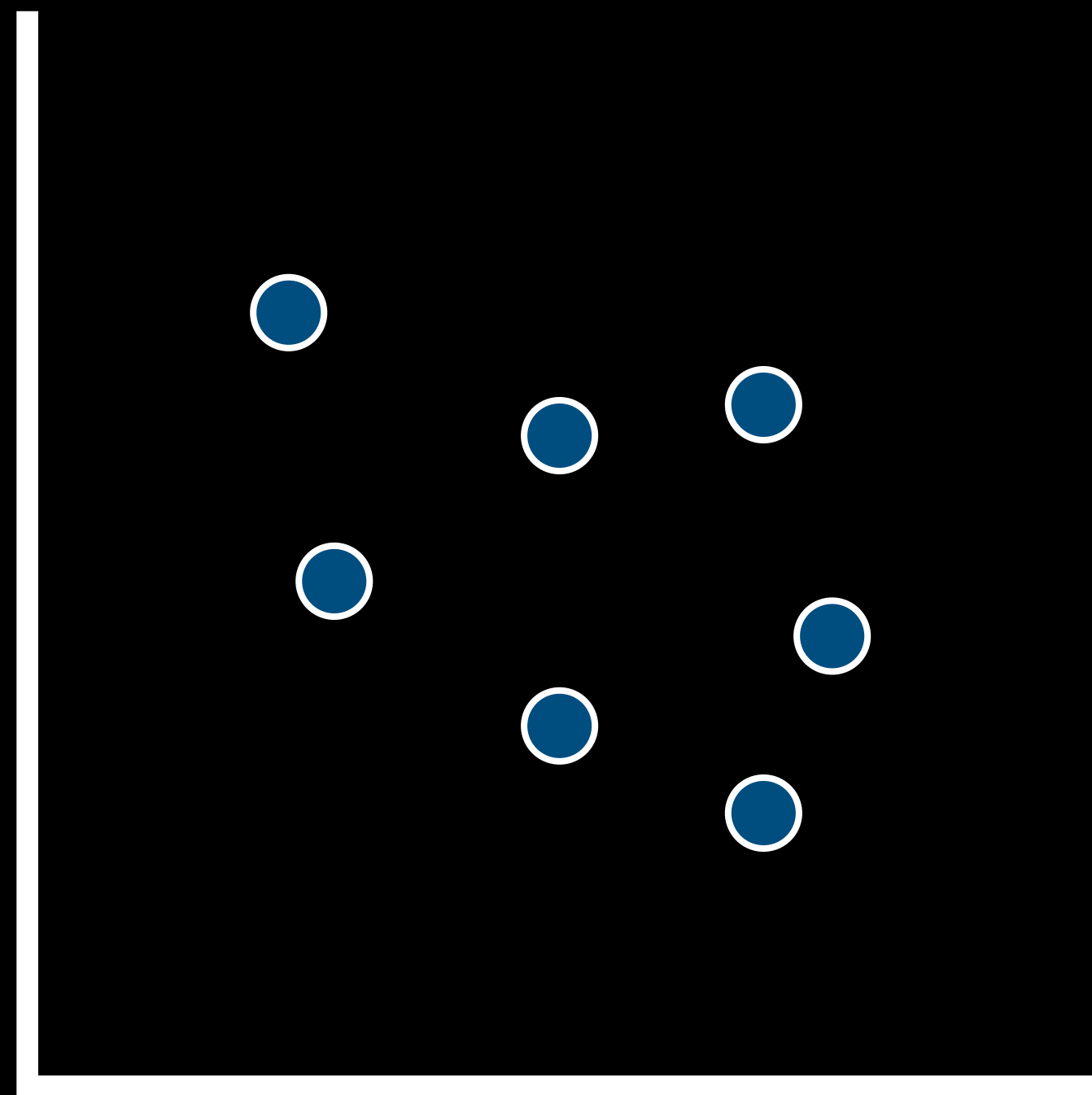
Mario	100
Peach	200
Bowser	150

Data

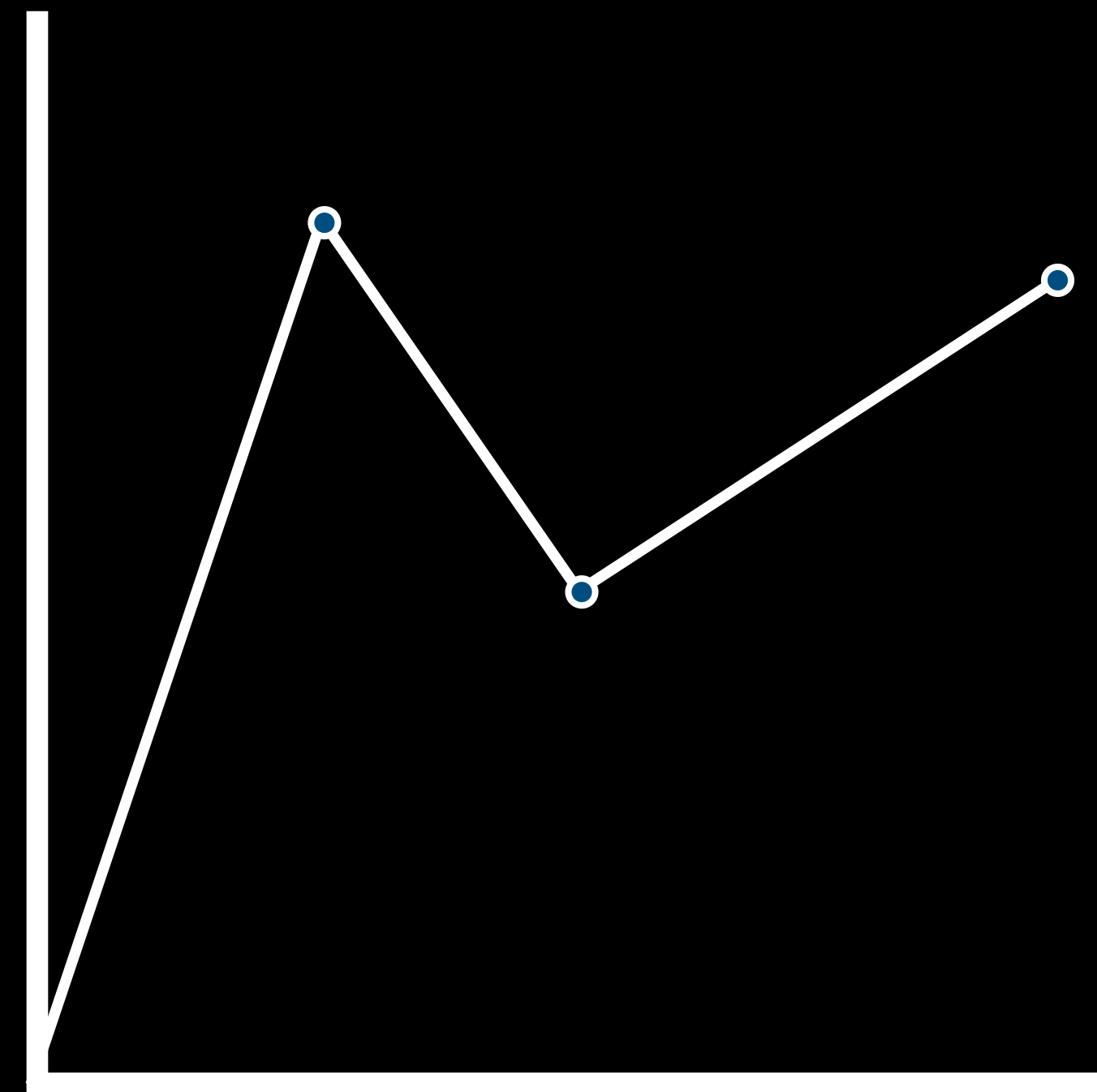
Geometries



Columns



Points

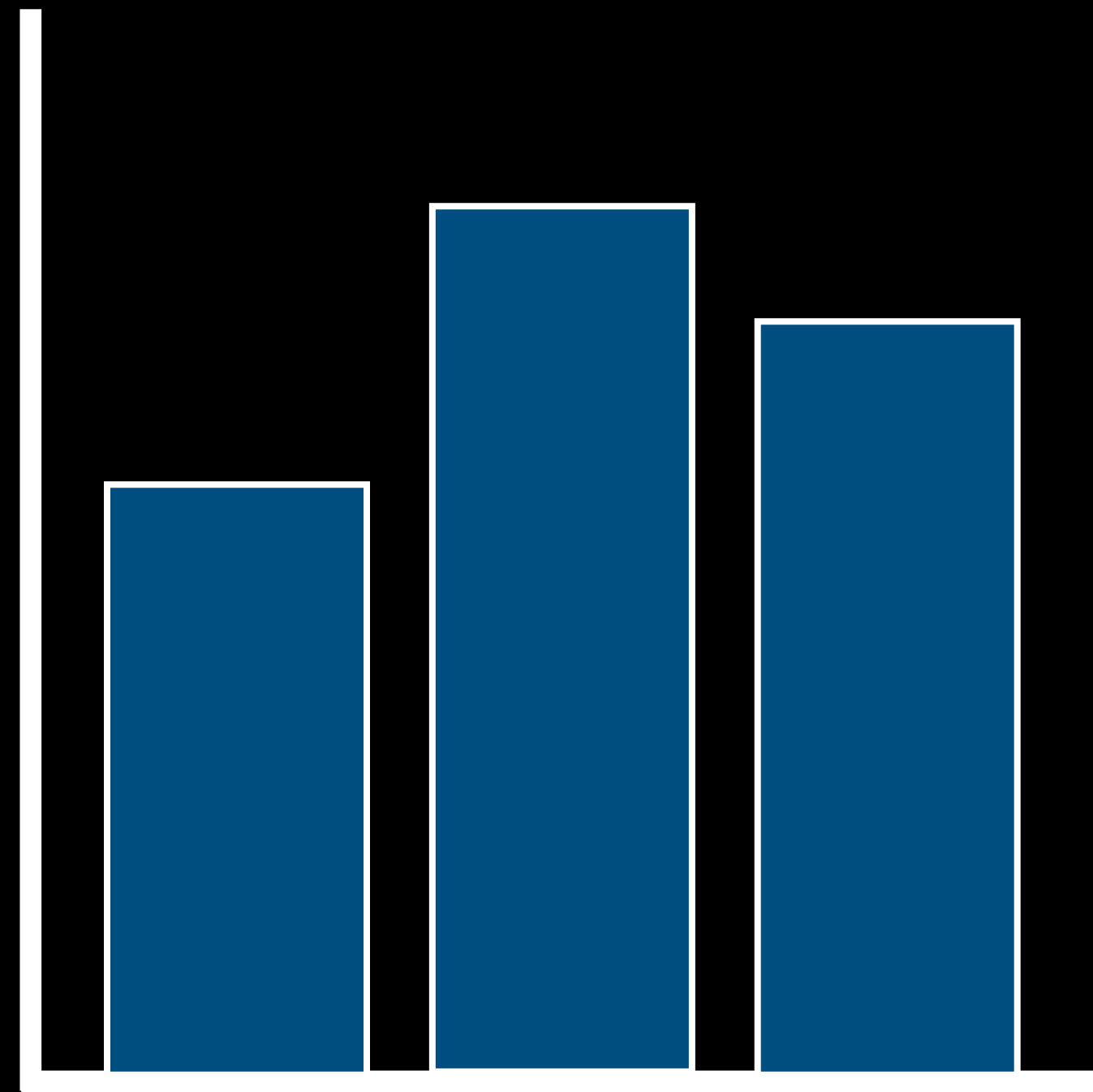


Lines

candidate

votes

Mario	100
Peach	200
Bowser	150



Columns

Data

Geometries

Aesthetic Mappings



y



x

candidate

votes

Mario	100
Peach	200
Bowser	150

candidate

votes

Mario	100
Peach	200
Bowser	150

X

candidate

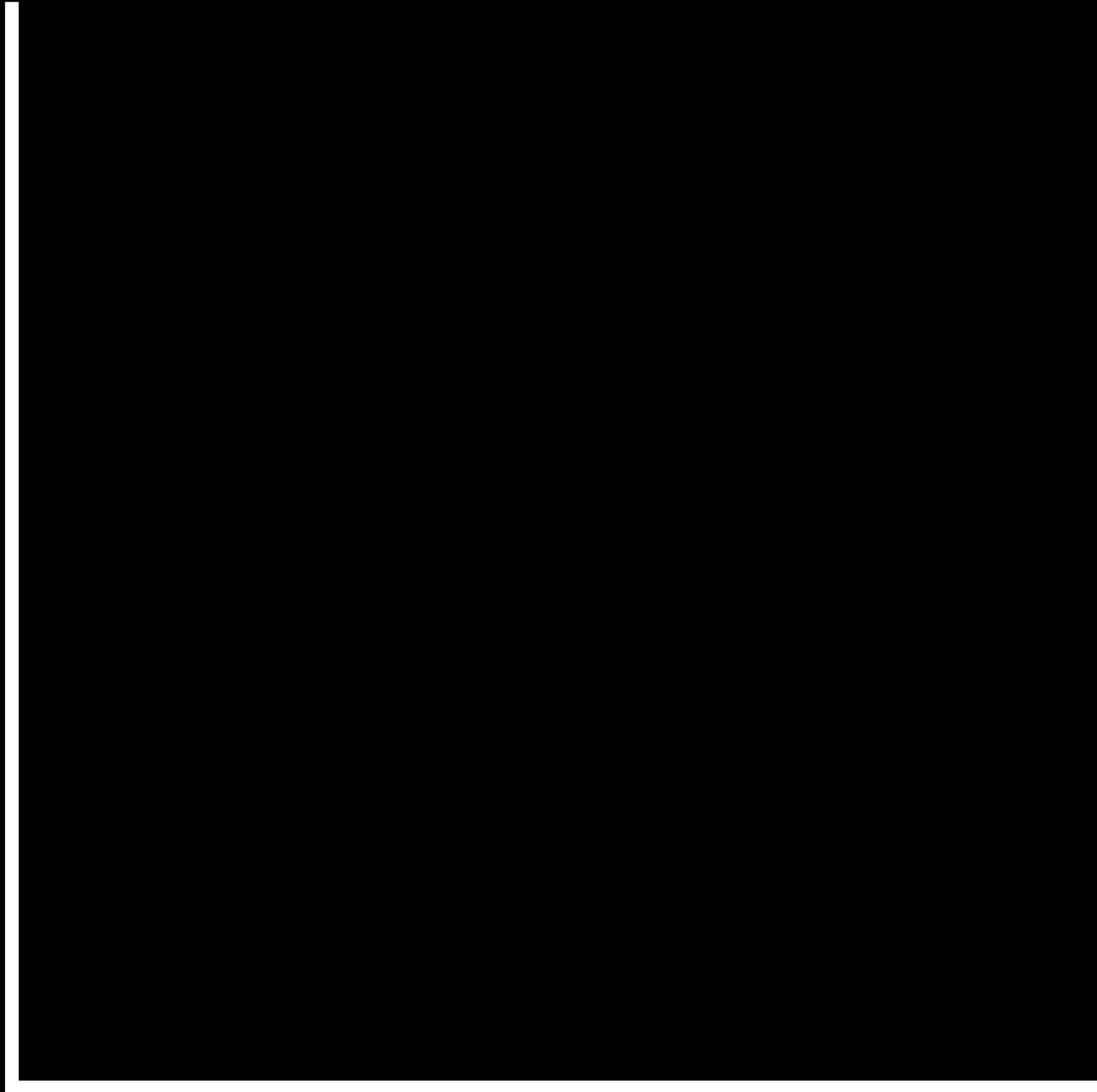
votes

Mario	100
Peach	200
Bowser	150

x

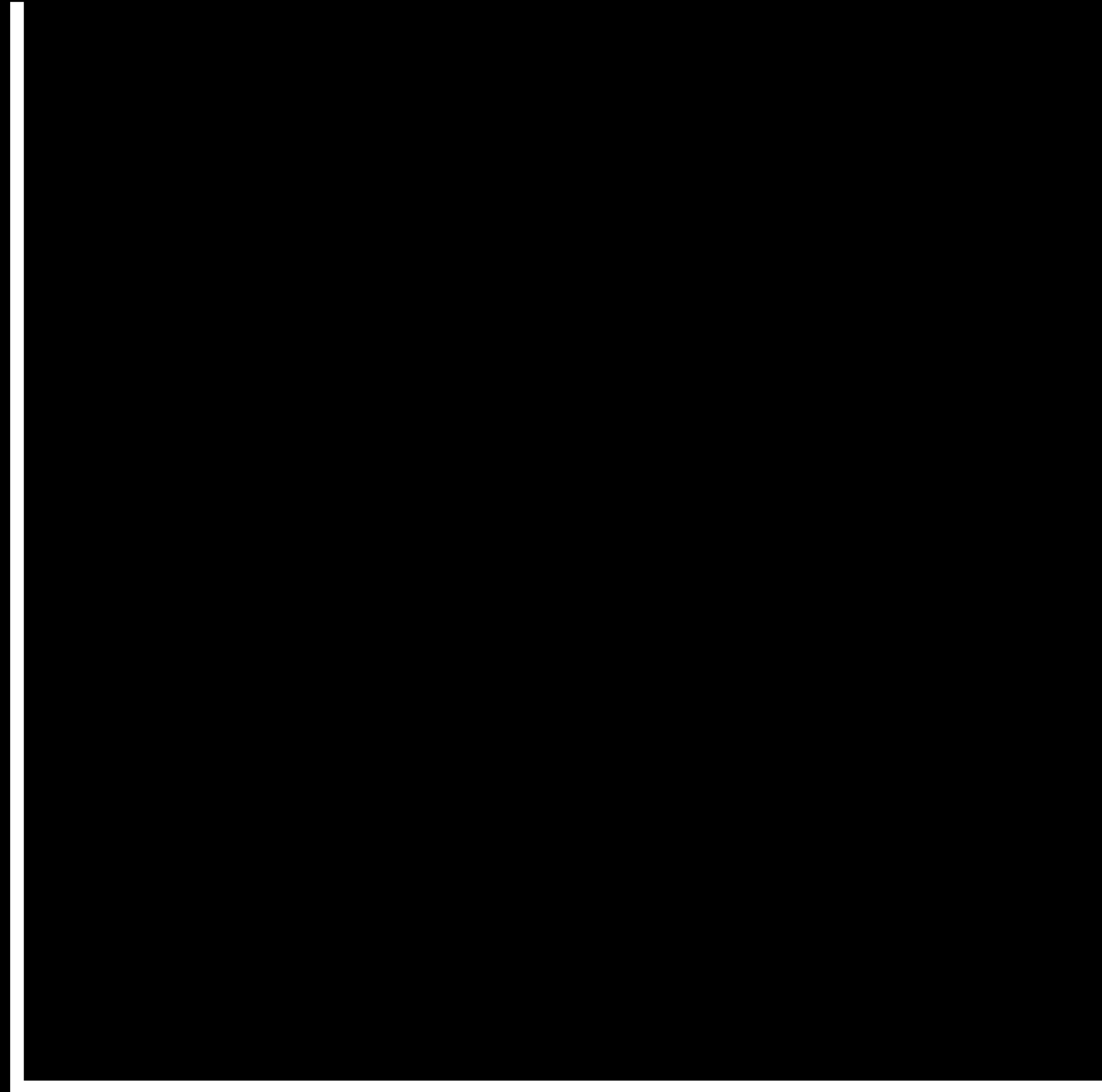
y

y



x

y

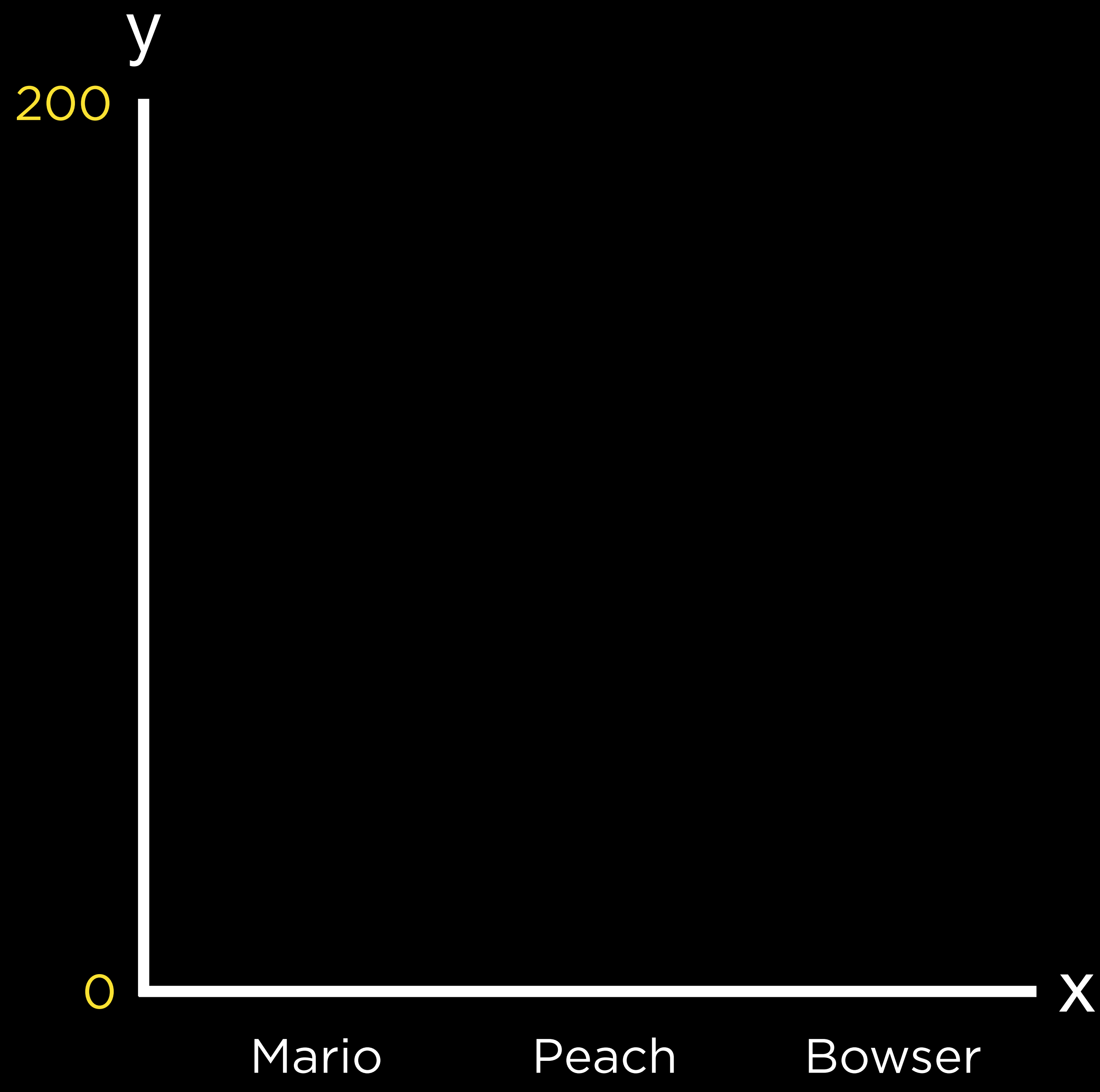


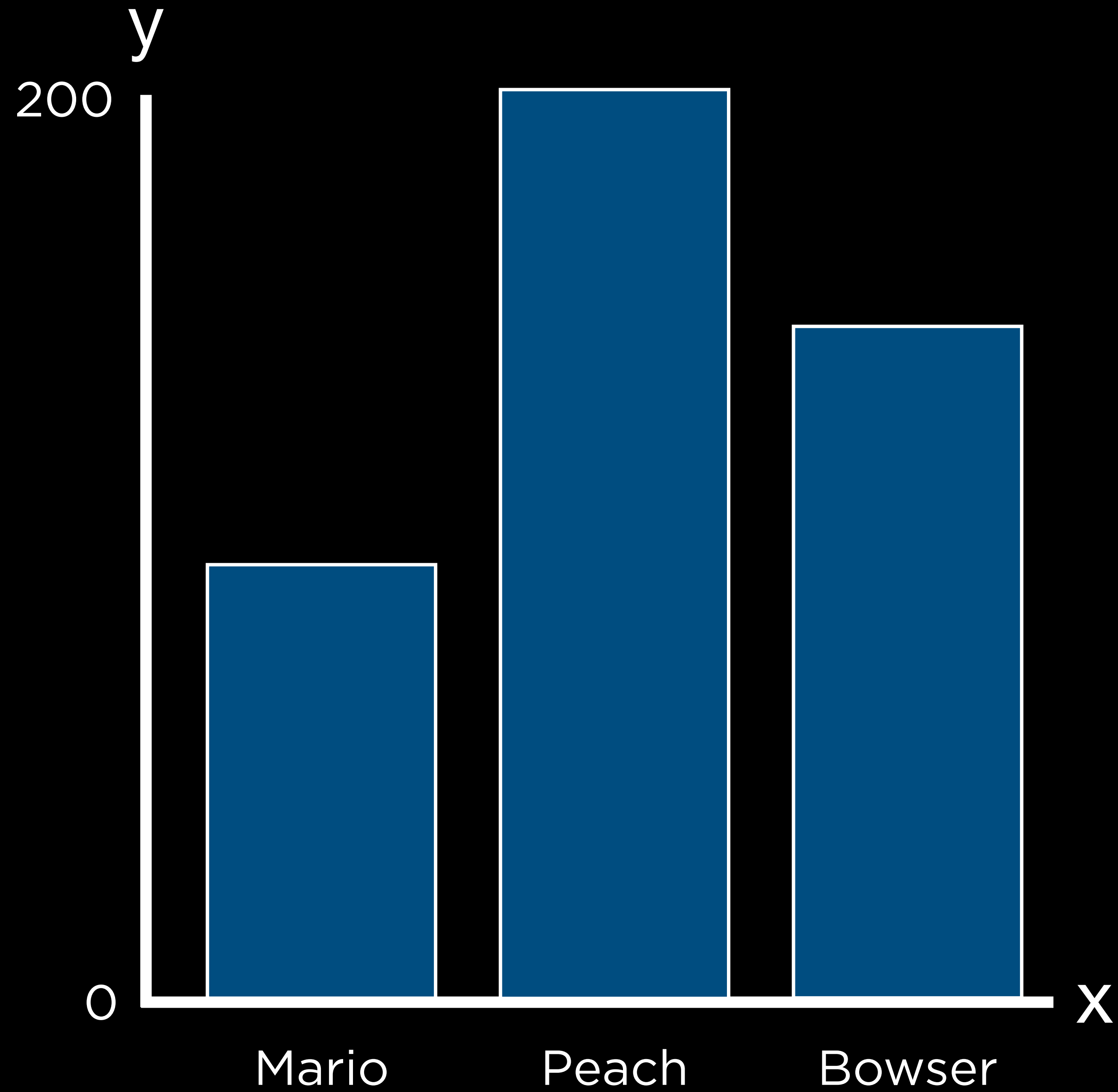
x

Mario

Peach

Bowser





ggplot

geom_col

aes(...)

```
aes(aesthetic = column, ...)
```

x

y

...

Scales

Continuous

Discrete

Limits

scale_x_continuous

scale_y_continuous

scale_x_discrete

scale_y_discrete

...

labs

fill

Viridis Scale

ggsave

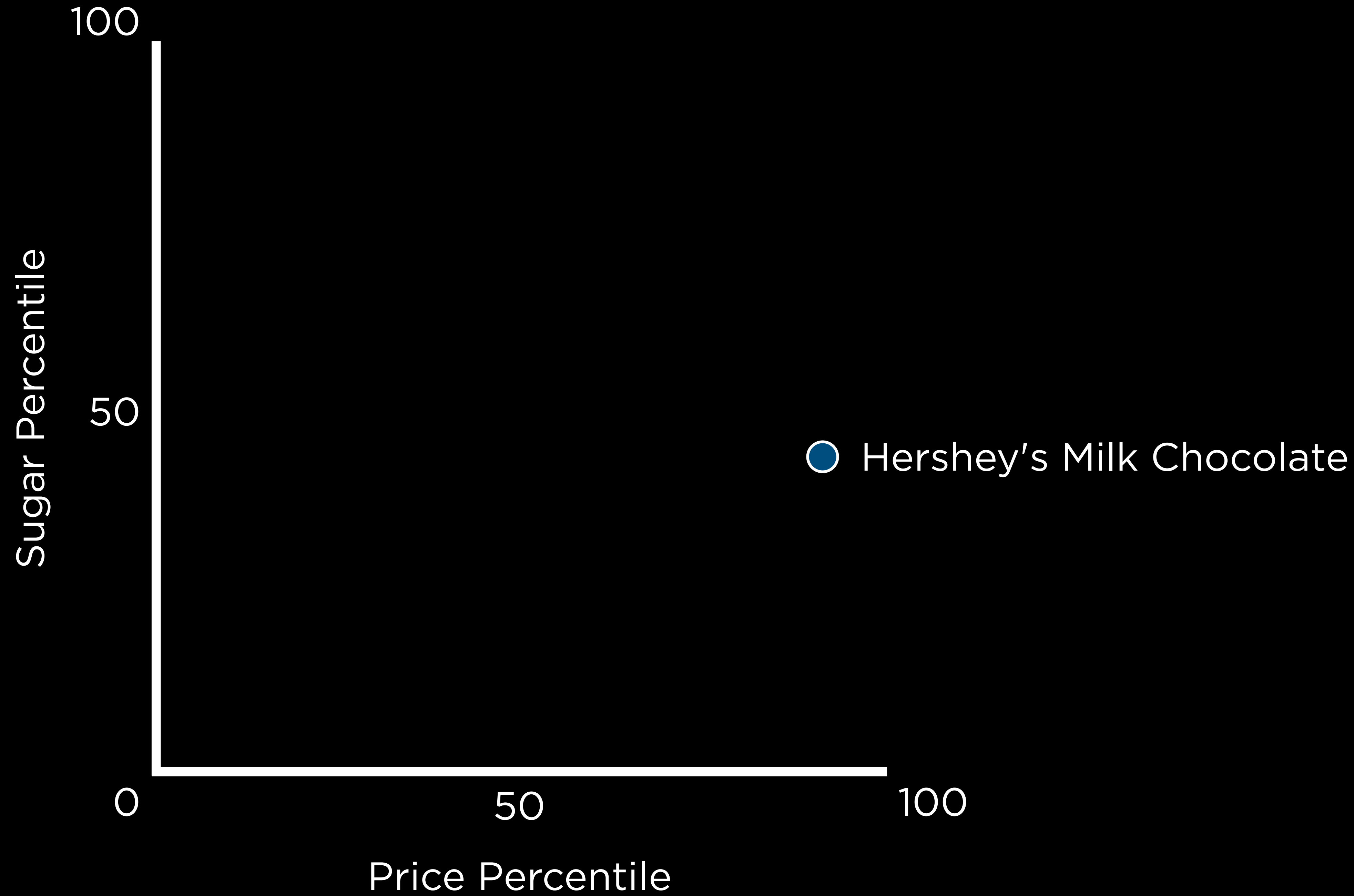
Candy

name	price_percentile	sugar_percentile
Hershey's Milk Chocolate	92	43
Reese's Peanut Butter Cup	65	72
Sour Patch Kids	12	7
Swedish Fish	76	60
...

candy

name	price_percentile	sugar_percentile
Hershey's Milk Chocolate	92	43
Reese's Peanut Butter Cup	65	72
Sour Patch Kids	12	7
Swedish Fish	76	60
...

candy



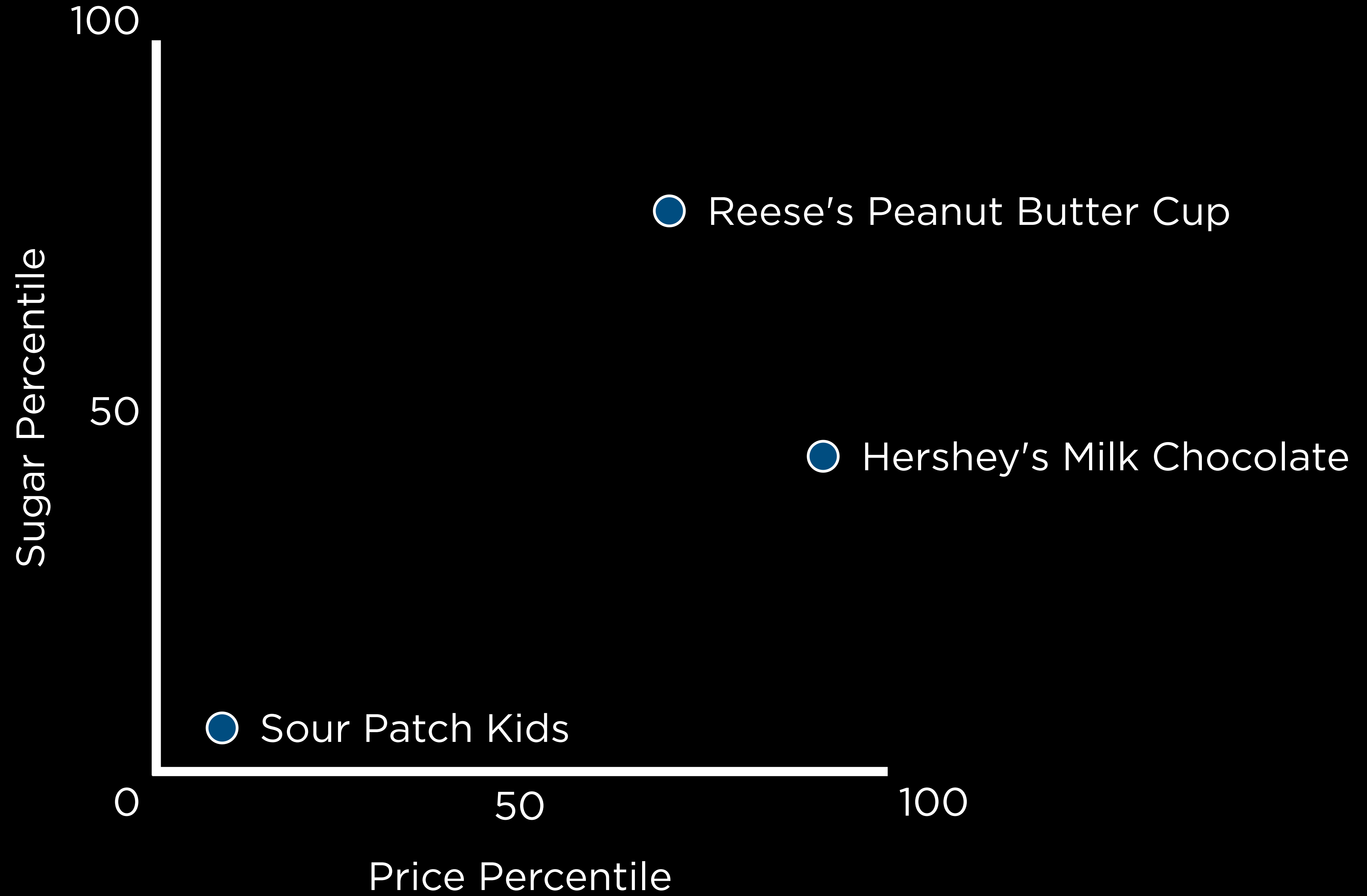
name	price_percentile	sugar_percentile
Hershey's Milk Chocolate	92	43
Reese's Peanut Butter Cup	65	72
Sour Patch Kids	12	7
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...

candy



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...

candy



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Swedish Fish	76	60
...

candy



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Hershey's Milk Chocolate	92	43
Reese's Peanut Butter Cup	65	72
Sour Patch Kids	12	7
Swedish Fish	76	60
...

candy

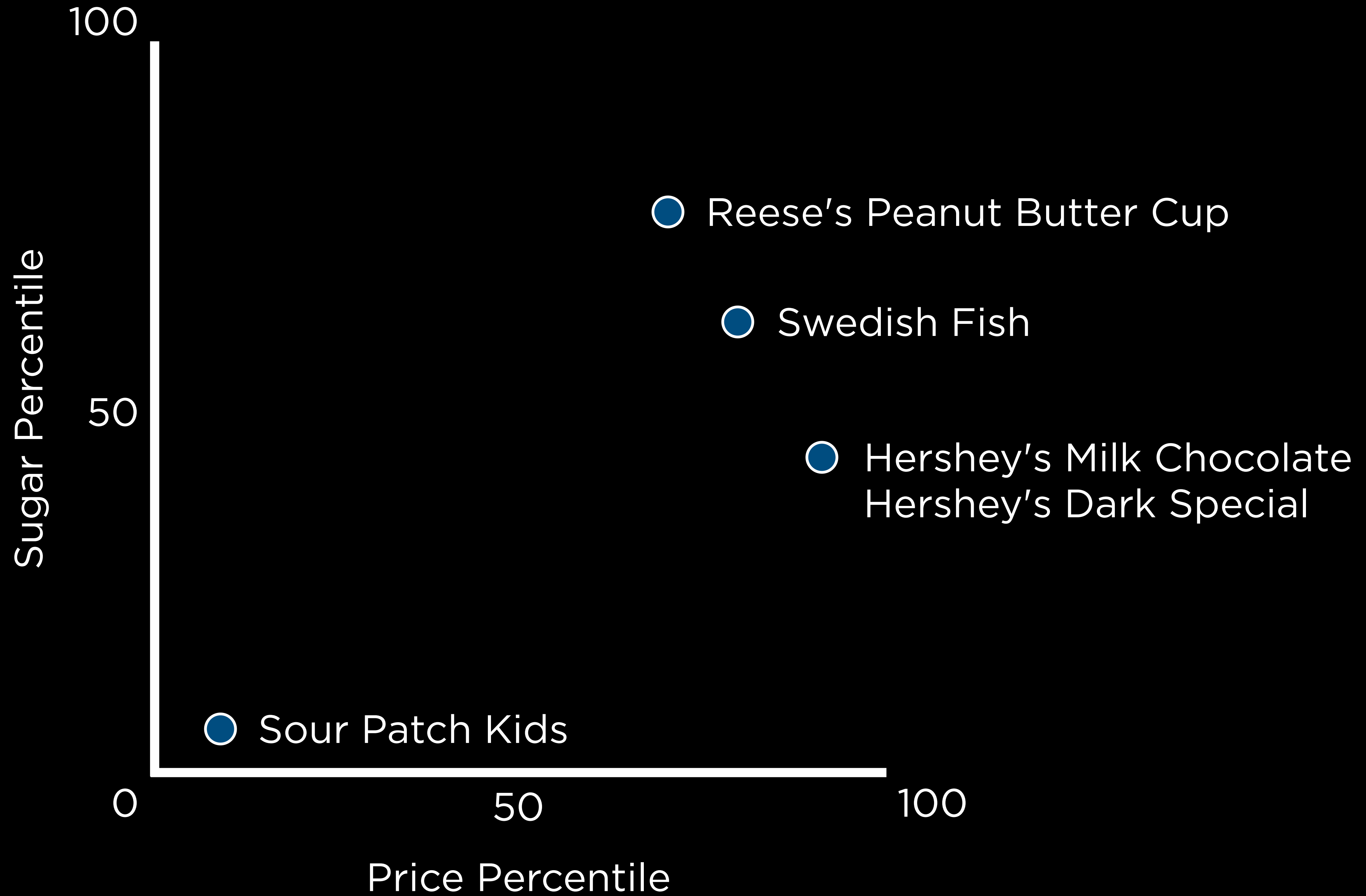
name	price_percentile	sugar_percentile
Hershey's Milk Chocolate	92	43
Reese's Peanut Butter Cup	65	72
Sour Patch Kids	12	7
Swedish Fish	76	60
Hershey's Special Dark	92	43
...

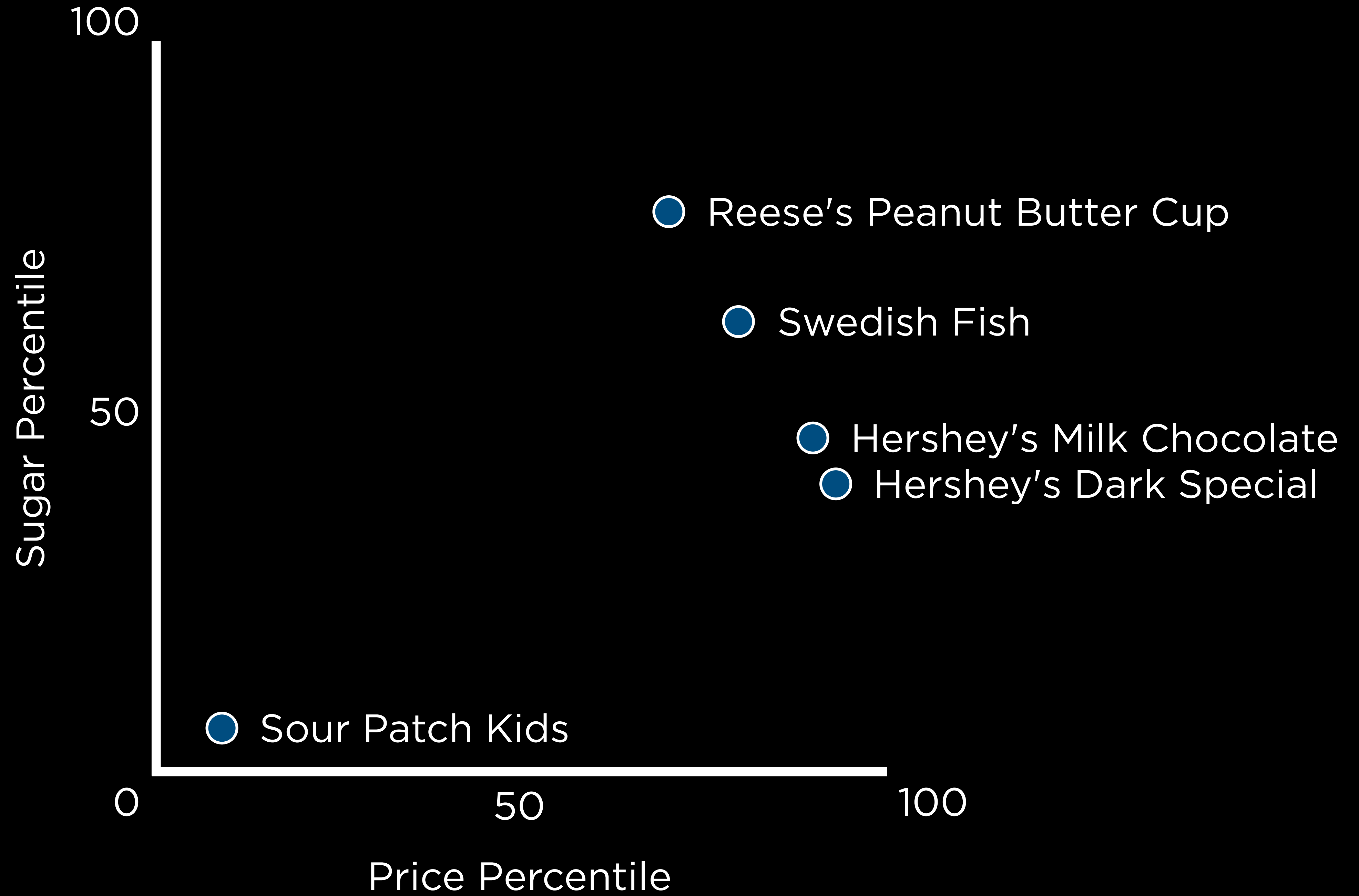
candy

name	price_percentile	sugar_percentile
Hershey's Milk Chocolate	92	43
Reese's Peanut Butter Cup	65	72
Sour Patch Kids	12	7
Swedish Fish	76	60
Hershey's Special Dark	92	43
...

candy







geom_point

geom_jitter

color

size

color

size

width

height

color

size

width

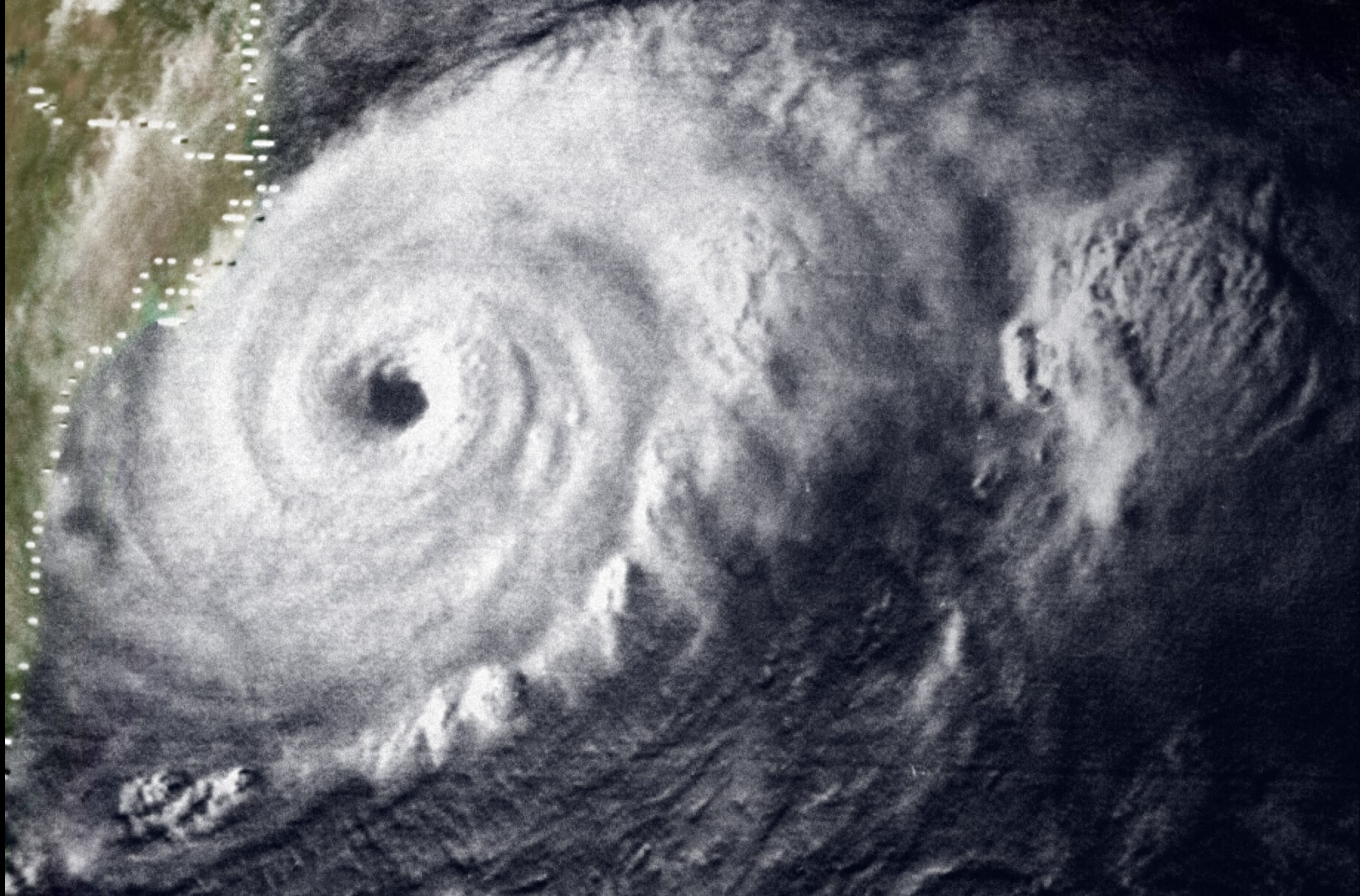
height

shape

fill

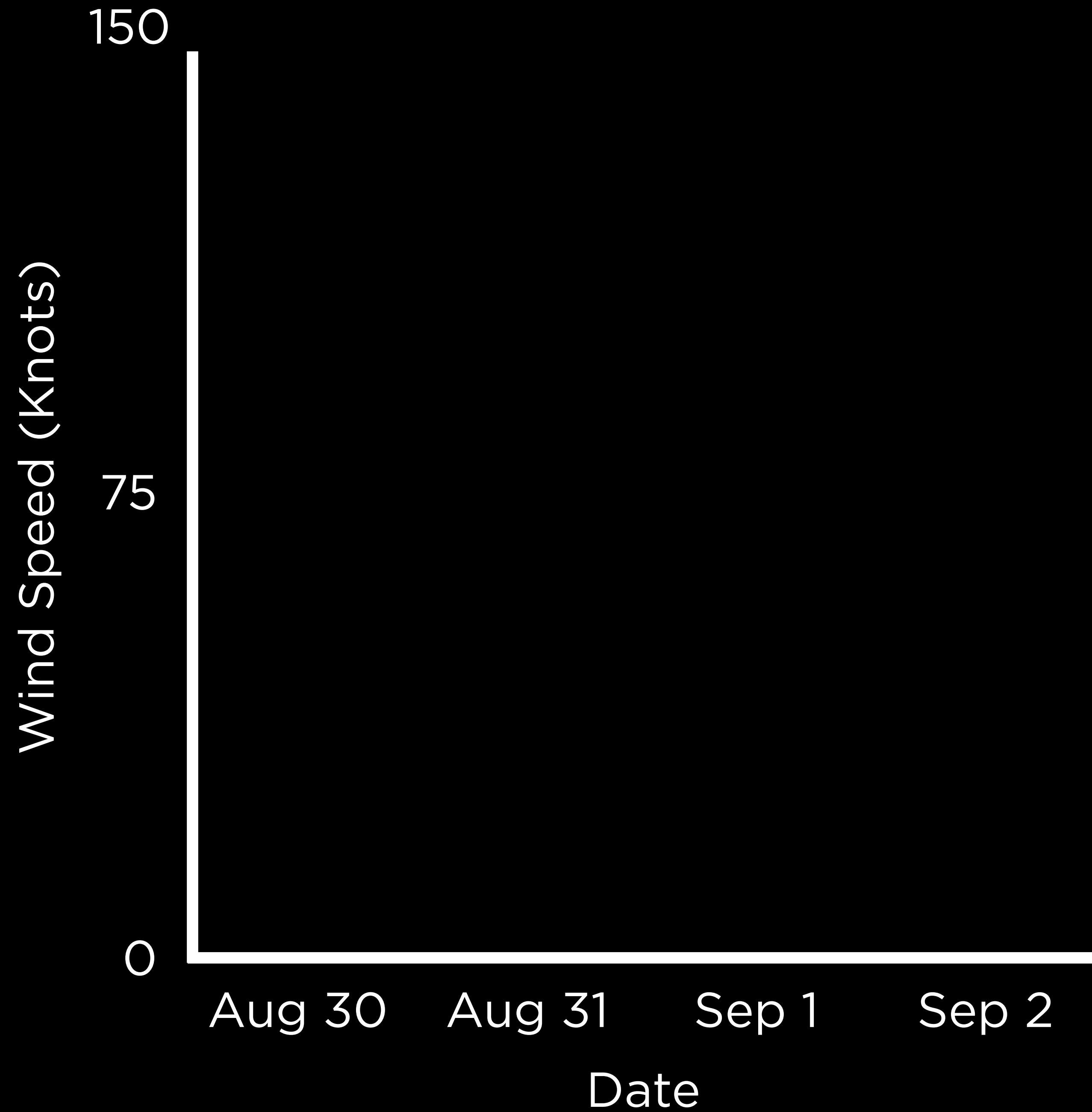
...

Hurricane Anita (1977)



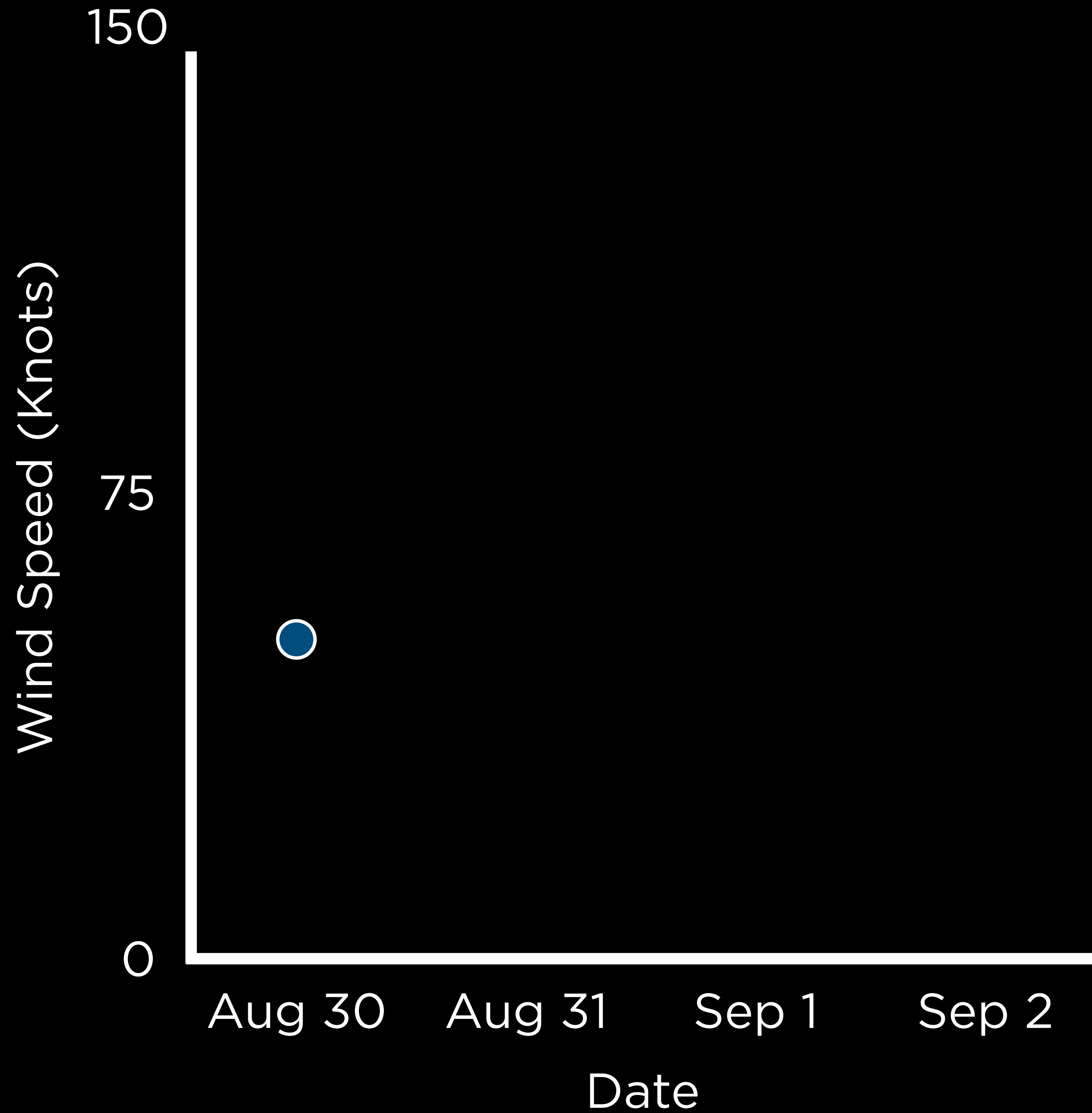
timestamp	wind
1977-08-30 12:00:00	50
1977-08-31 12:00:00	75
1977-09-01 12:00:00	90
1977-09-02 12:00:00	120
...	...

anita



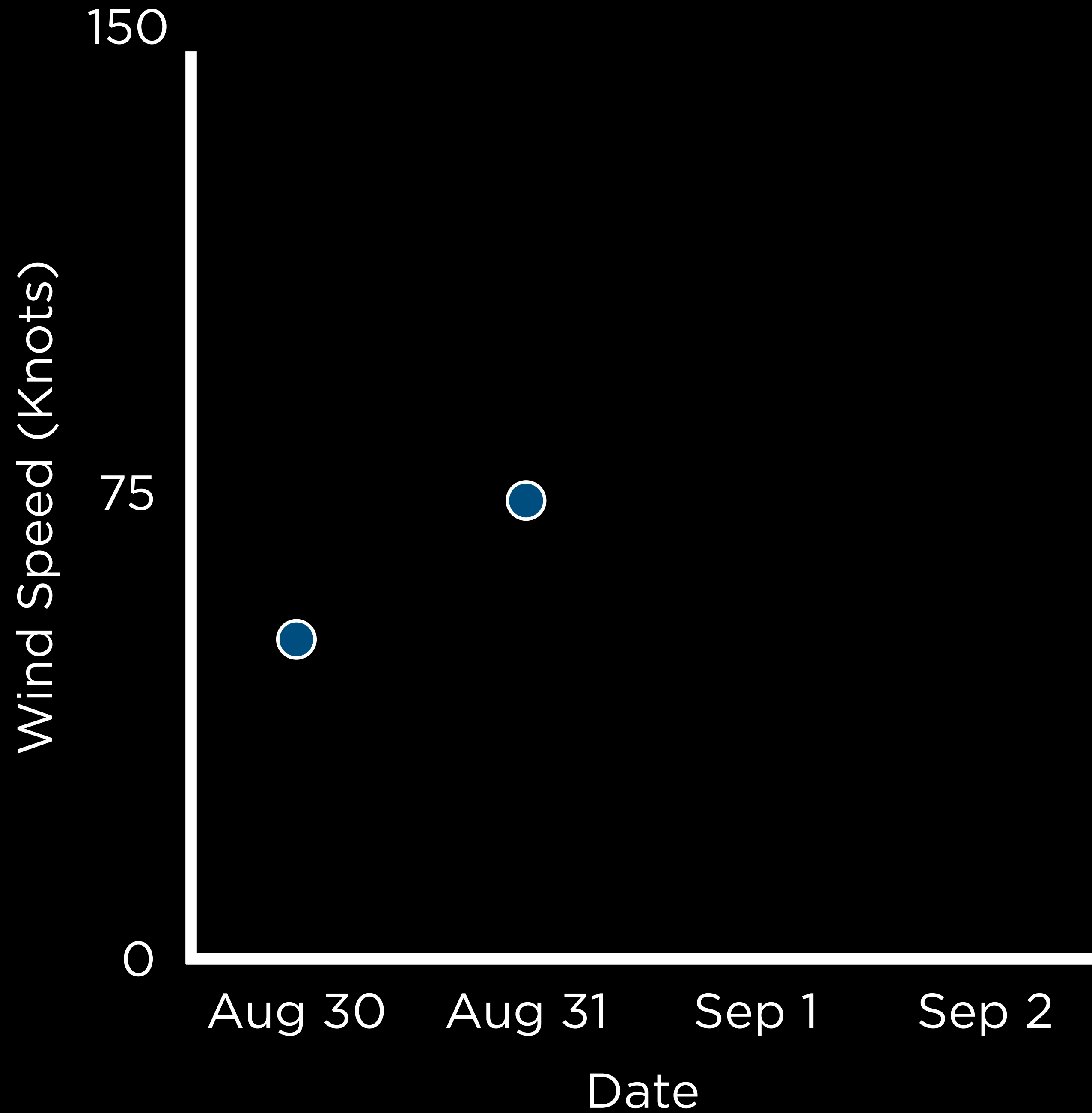
timestamp	wind
1977-08-30 12:00:00	50
1977-08-31 12:00:00	75
1977-09-01 12:00:00	90
1977-09-02 12:00:00	120
...	...

anita



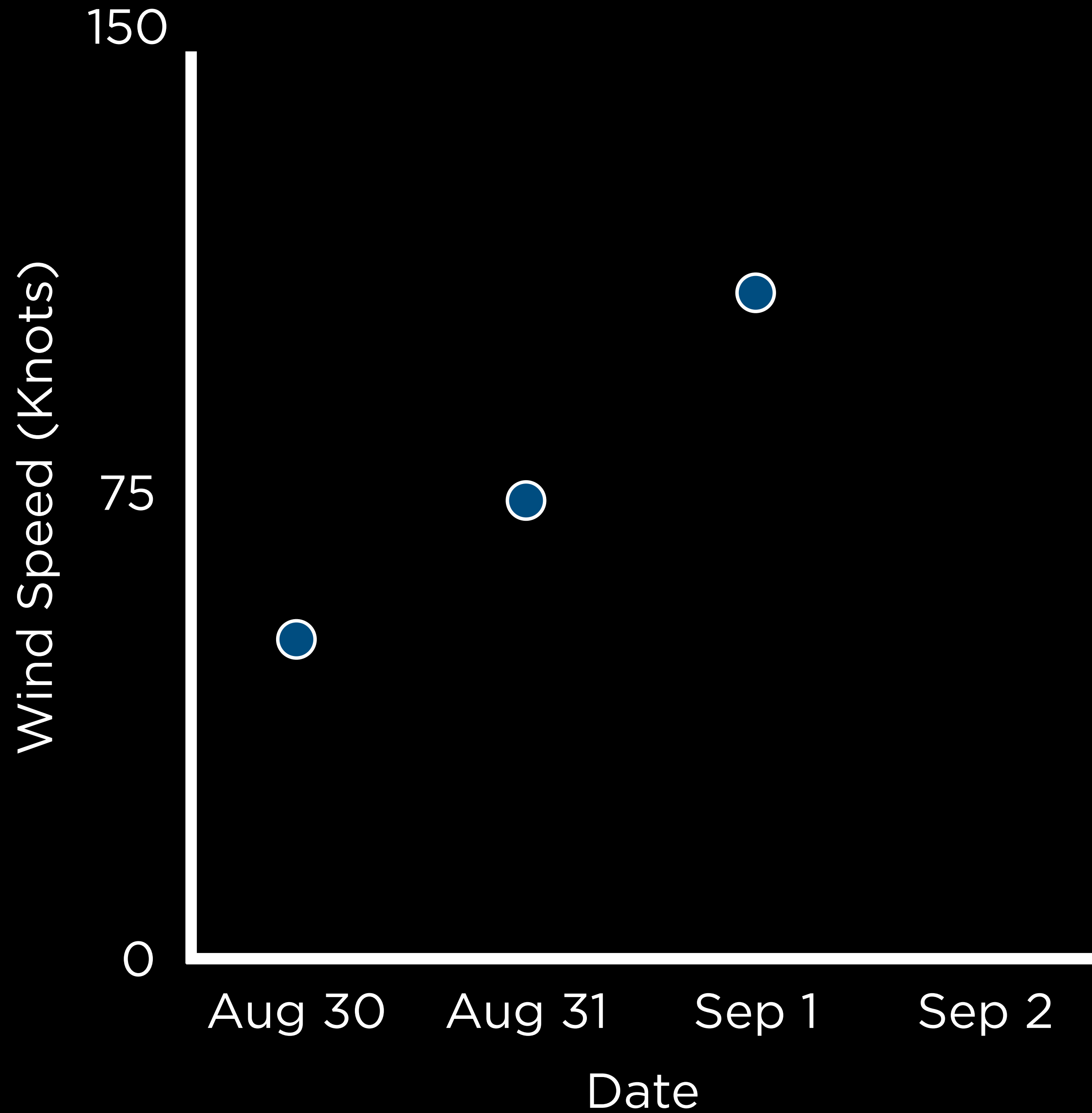
timestamp	wind
1977-08-30 12:00:00	50
1977-08-31 12:00:00	75
1977-09-01 12:00:00	90
1977-09-02 12:00:00	120
...	...

anita



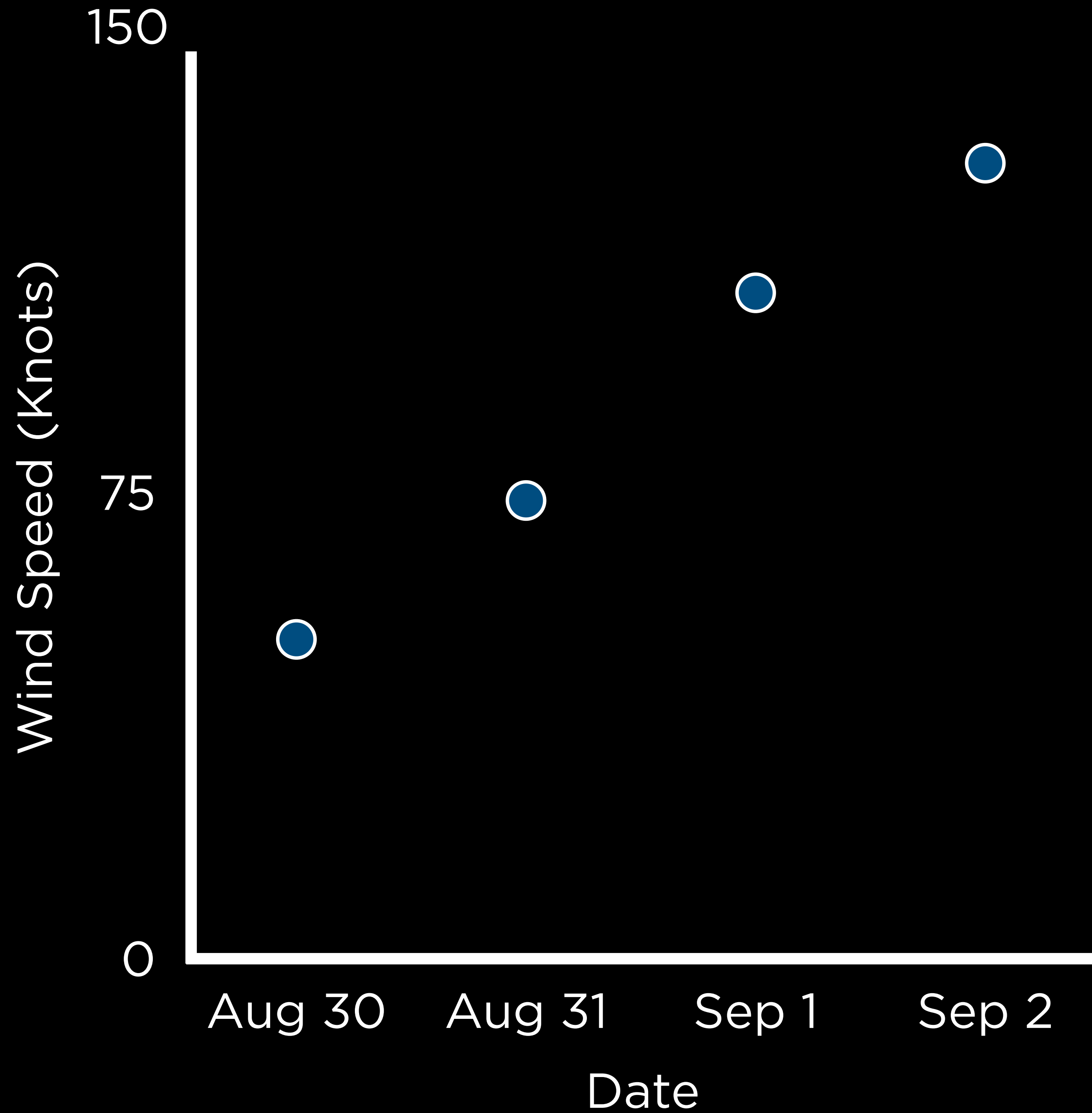
timestamp	wind
1977-08-30 12:00:00	50
1977-08-31 12:00:00	75
1977-09-01 12:00:00	90
1977-09-02 12:00:00	120
...	...

anita



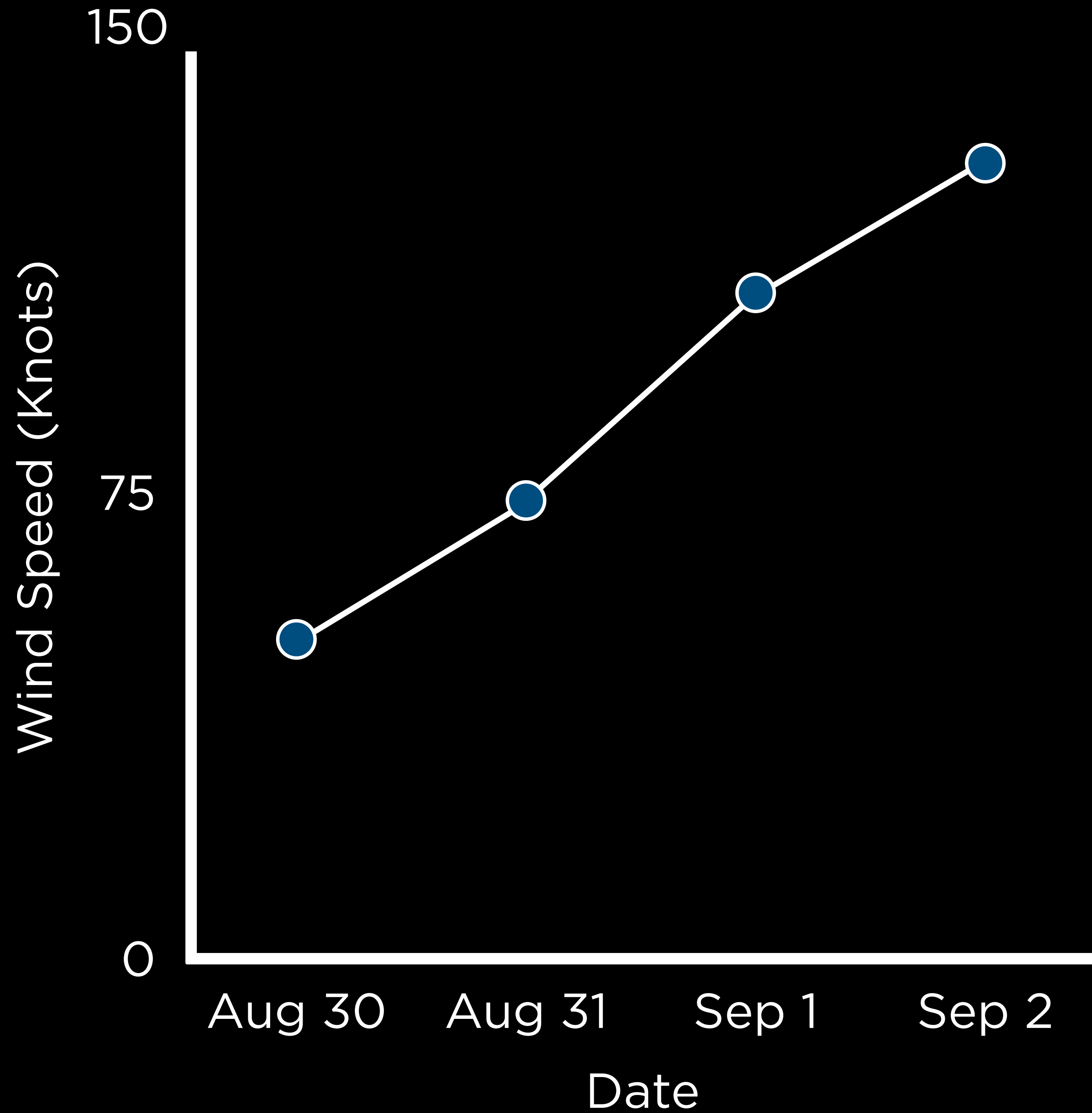
timestamp	wind
1977-08-30 12:00:00	50
1977-08-31 12:00:00	75
1977-09-01 12:00:00	90
1977-09-02 12:00:00	120
...	...

anita



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1977-08-30 12:00:00	50
1977-08-31 12:00:00	75
1977-09-01 12:00:00	90
1977-09-02 12:00:00	120
...	...

anita



timestamp	wind
1977-08-30 12:00:00	50
1977-08-31 12:00:00	75
1977-09-01 12:00:00	90
1977-09-02 12:00:00	120
...	...

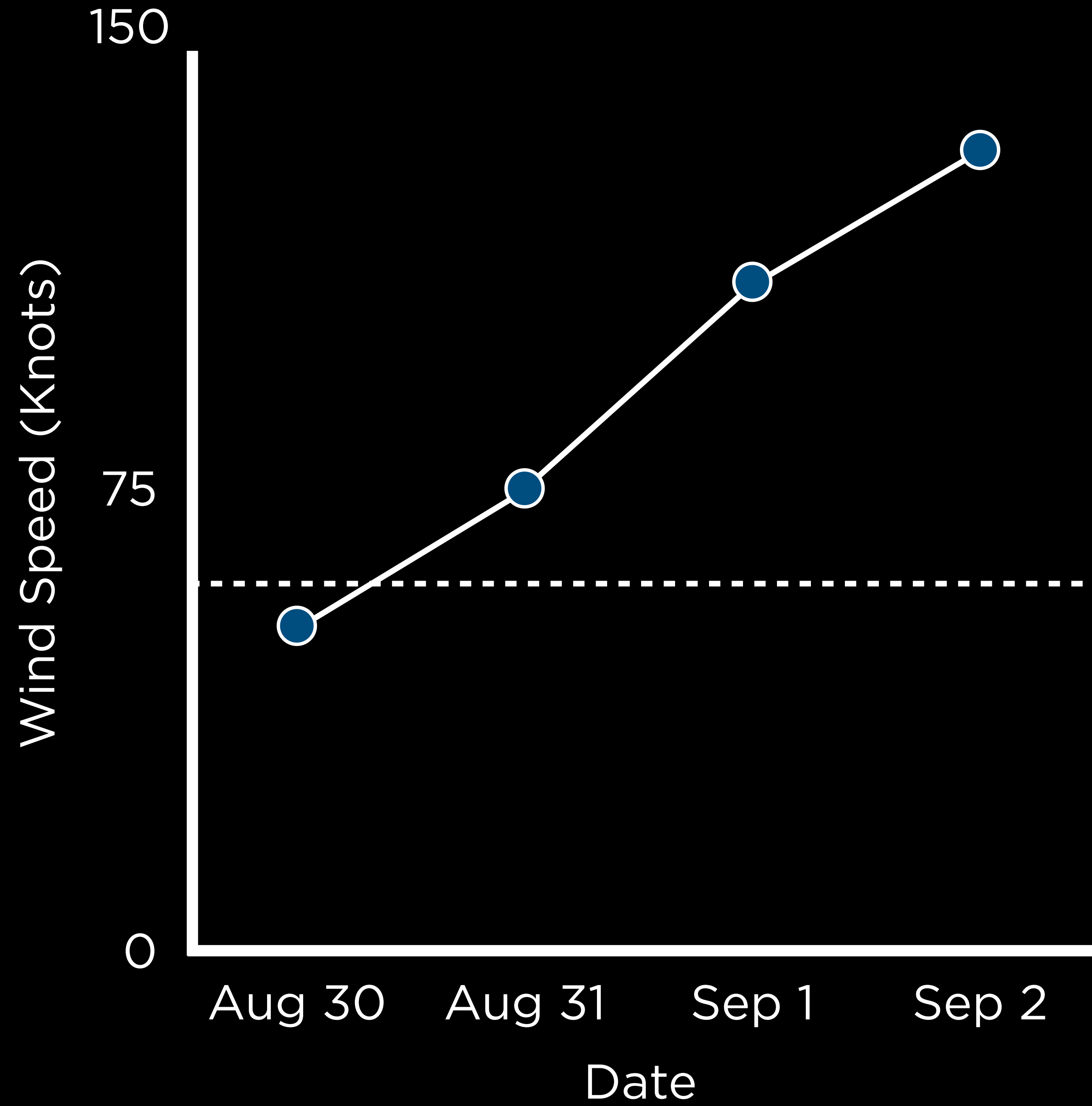
anita

geom_line

linetype

linewidth

...



geom_hline

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Programming with R

Visualizing Data