

Grids All The Way Down

@rachelandrew at Codemotion

Doing things on the web since 1996

Co-founder **Perch CMS** & **Notist**. Editor in Chief **Smashing Magazine**. Writer of many books. **CSS Working Group Member** representing **Fronteers**. Spec editor **Multicol** and **Page Floats**. **MDN** tech writer.

CSS Grid Layout

Two years on.

“I can make flexbox do
anything. Why should I learn
grid?”

People on Twitter.

“Should I use colour in this web design, or will fonts do?”

A question nobody asks.

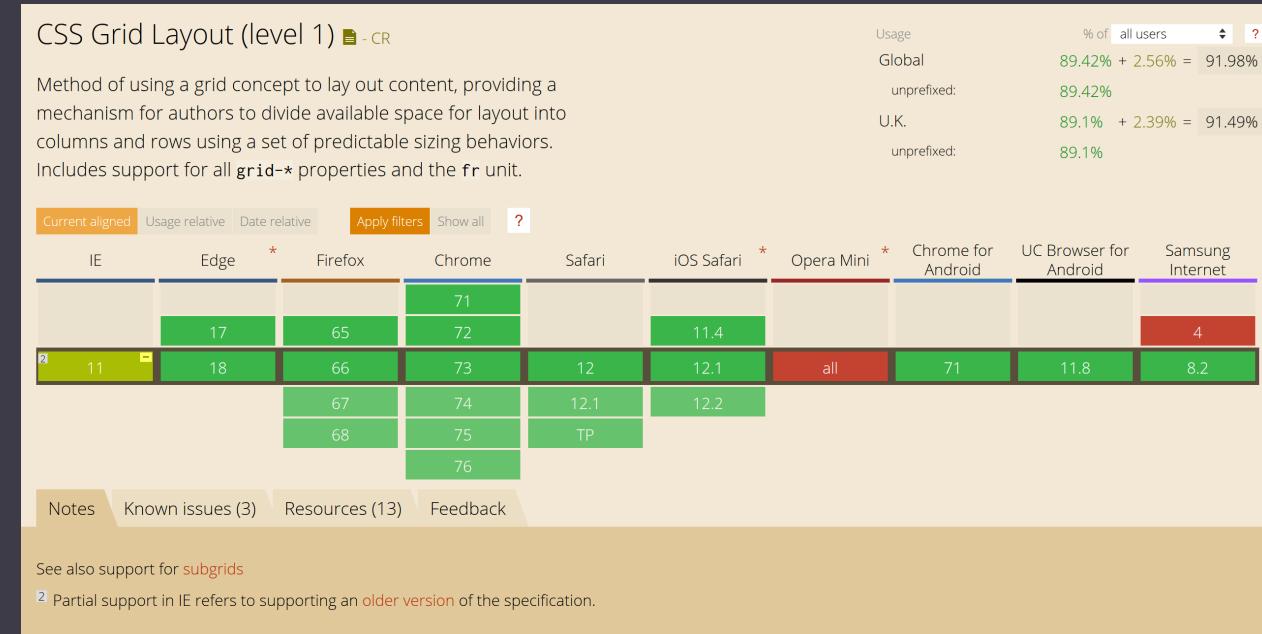
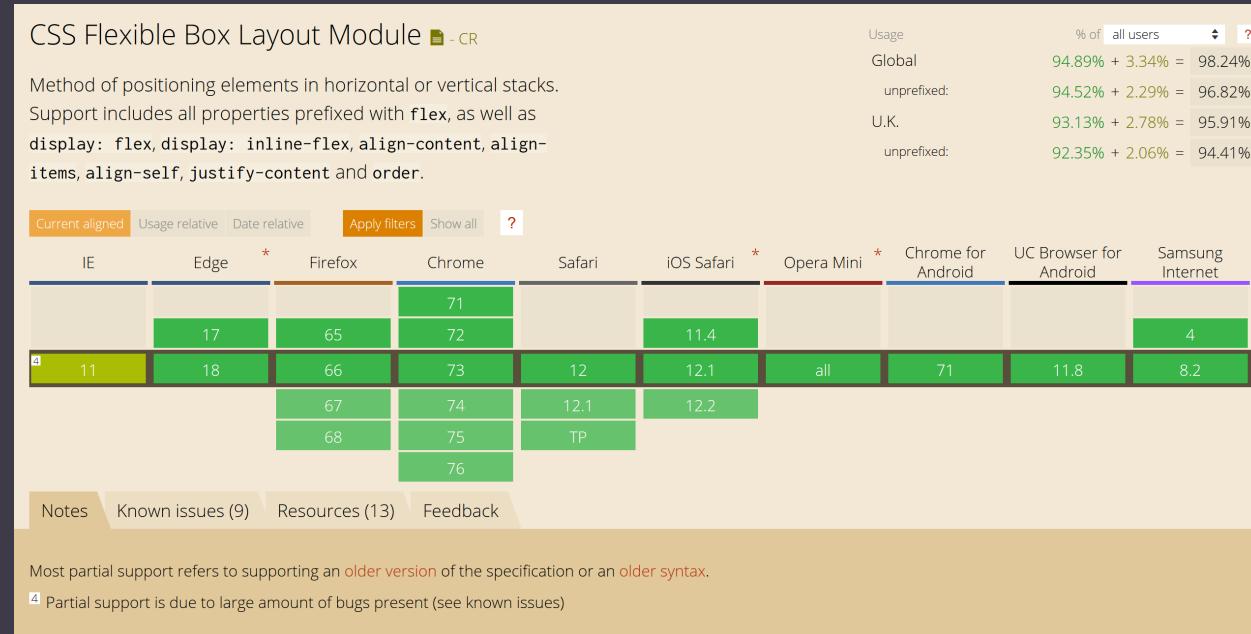
“Should I build my site using Flexbox or Grid?”

A question I am asked almost daily.

Stop thinking about
Flexbox & Grid as two
separate layout methods

Should I build my site
using Flexbox or Grid?

YES.



Look at the pattern you need to build.

That will tell you which layout method you need.

Flexbox when you have a
bunch of different size
stuff you want displayed
in a readable way.

Bristol Bombay

Douglas C-26

Vickers Victoria

Cessna 172 Skyhawk

Short Stirling

Gloster IV

Airbus A380

**Grid for when you want
to control the structure
and place items into it.**

Bristol Bombay

Douglas C-26

Vickers Victoria

Cessna 172 Skyhawk

Short Stirling

Gloster IV

Airbus A380

If you are putting widths
on all your flex items to
make them line up. You
probably want grid.



Airbus
A380

The Airbus A380 is the world's largest passenger airliner.



Short
Stirling

The Short Stirling was a British four-engined heavy bomber of WW2



Cessna 172

The Cessna 172 is a four seat, single engine aircraft.



de Havilland
Canada
DHC-3 Otter

The de Havilland Canada DHC-3 Otter is a single-engined, high-wing, propeller-driven, short take-off and landing (STOL) aircraft.



Fokker F27
Friendship

The Fokker F27 Friendship is a turboprop airliner developed and manufactured by the Dutch aircraft manufacturer Fokker.



Airbus
A380

The Airbus A380 is the world's largest passenger airliner.



Short Stirling

The Short Stirling was a British four-engined heavy bomber of WW2



Cessna 172

The Cessna 172 is a four seat, single engine aircraft.

```
/* flex */
.airplanes {
  display: flex;
  flex-wrap: wrap;
}

.airplanes li {
  flex: 1 1 400px;
  height: 45vh;
  margin: 2vh 10px;
}

/* grid */
.airplanes {
  display: grid;
  grid-gap: 5vh;
  grid-template-columns:
    repeat(auto-fill, minmax(400px, auto));
  grid-auto-rows: 45vh;
}
```



de Havilland
Canada
DHC-3 Otter

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Cessna
172

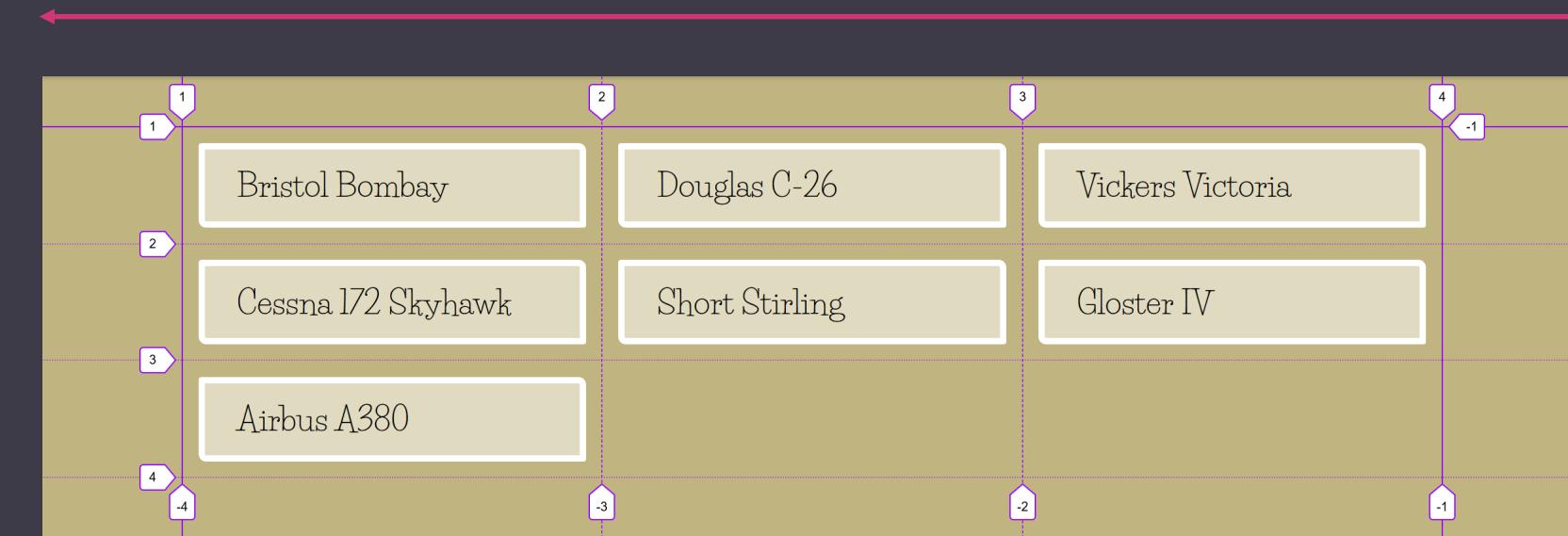
The Cessna 172 is a four seat, single engine aircraft.

Two-dimensional

Grid works in the same way in both axes.

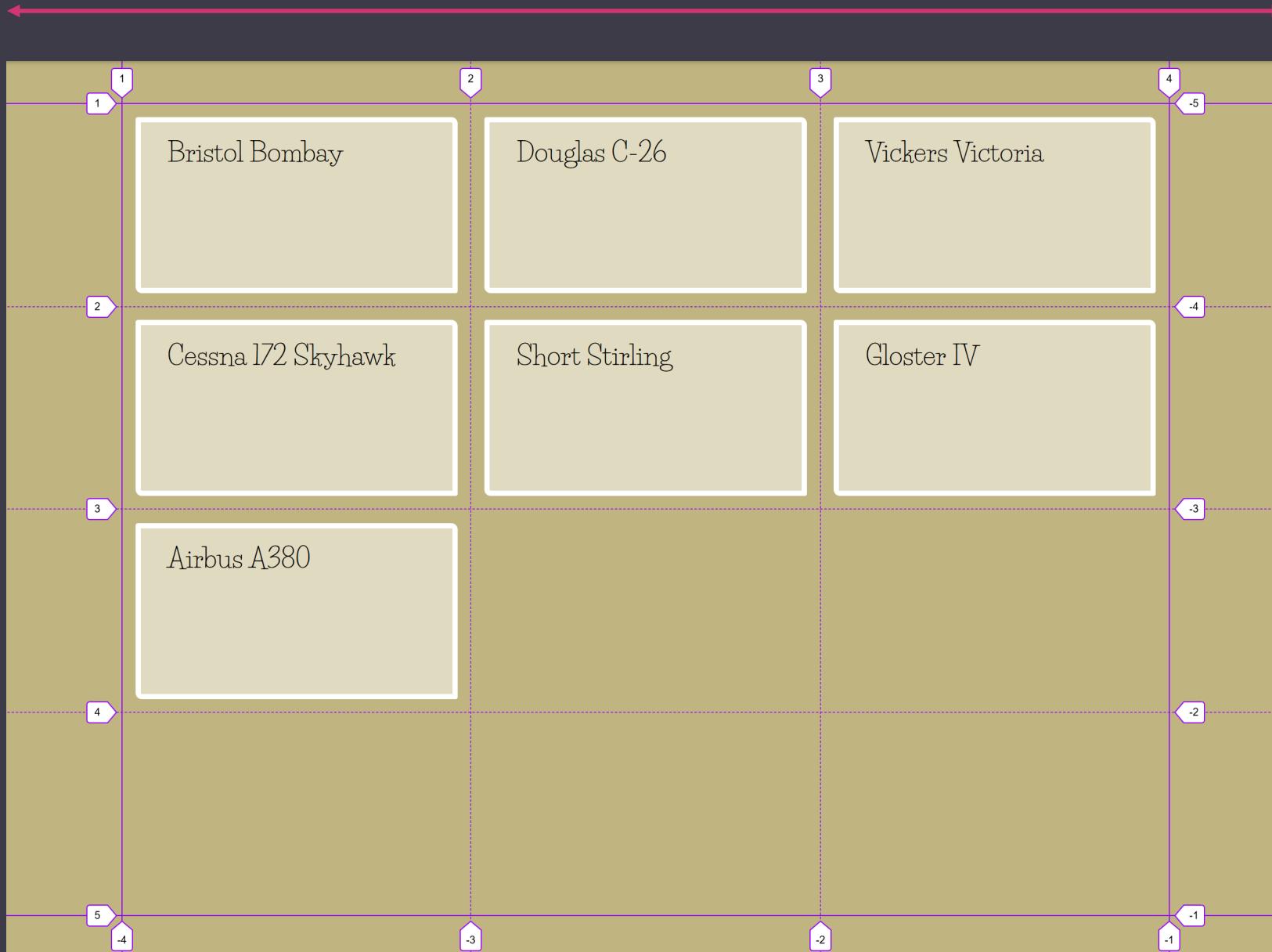
Inline dimension: the grid fills the grid container

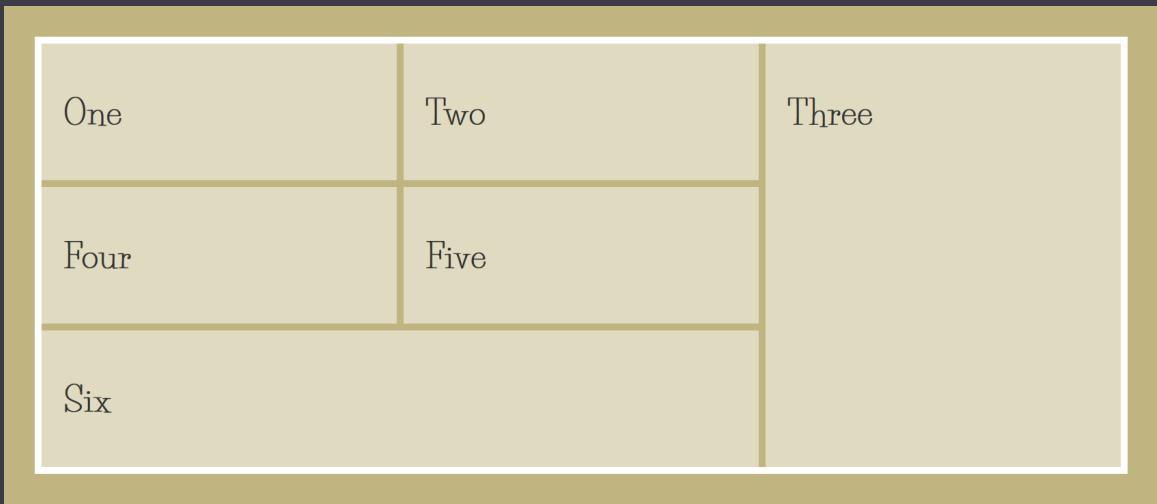
Block dimension:
as tall as is
needed for the
content.



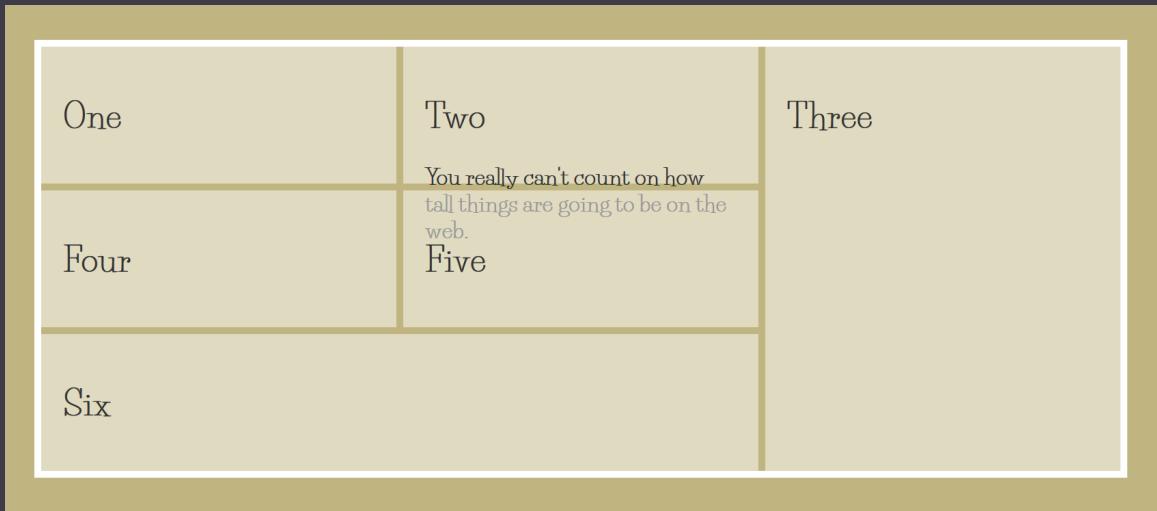
Inline dimension: the grid fills the grid container

Block dimension:
the grid fills the
grid container

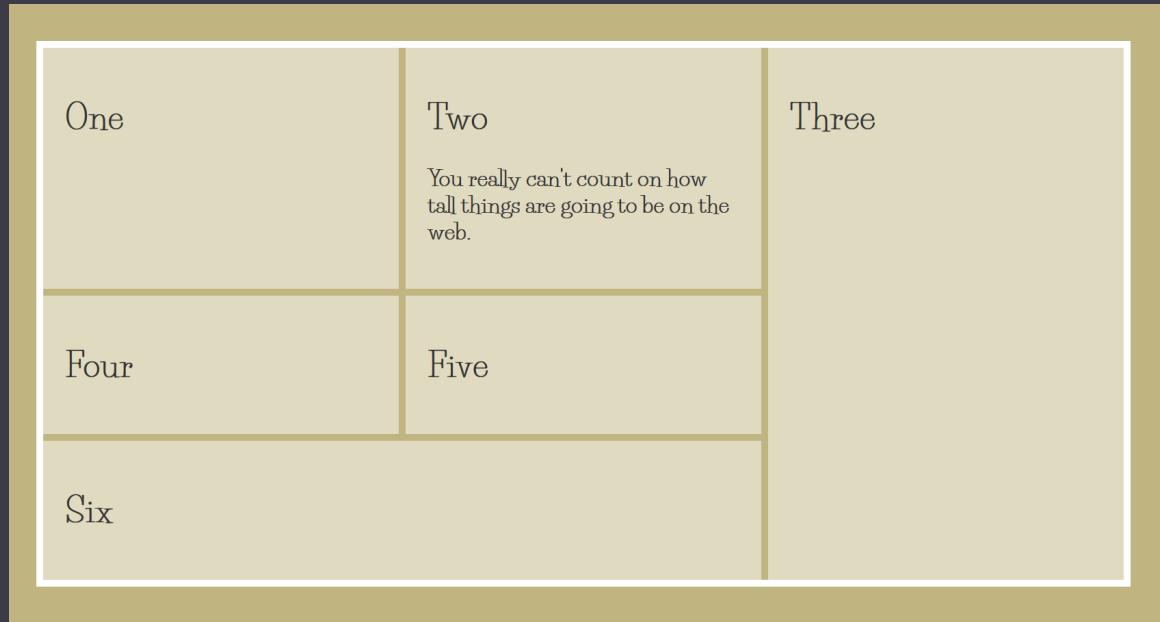




```
.grid {  
  display: grid;  
  grid-template-columns: repeat(3, 1fr);  
  grid-template-rows: repeat(3,100px);  
  gap: 5px;  
}
```



```
.grid {  
  display: grid;  
  grid-template-columns: repeat(3, 1fr);  
  grid-template-rows: repeat(3, 100px);  
  gap: 5px;  
}
```



```
.grid {  
  display: grid;  
  grid-template-columns: repeat(3, 1fr);  
  grid-template-rows:  
    repeat(3, minmax(100px, auto));  
  gap: 5px;  
}
```

We have choices now!

Enjoy them, they have been a long time coming.



Meowlivia_
@meowlivia_

Follow

A quote by @rachelandrew during her workshop. This is her response when someone expressed concern about whether they're using CSS Grid correctly. I'm so happy about this! I always feel like I'm not utilizing CSS Grid "the right way" but it works... so... 🙏 😊



12:59 PM - 12 May 2019

What can't we do yet?



de Havilland
Canada DHC-3
Otter

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Airbus A380

The Airbus A380 is the world's largest passenger airliner.



Fokker F27
Friendship

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Short
Stirling

The Short Stirling was a British four-engined heavy bomber of WW2



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Canada DHC-3
Otter

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```
figure {  
    display: grid;  
    height: 100%;  
    grid-template-columns: 1fr 3fr;  
    grid-template-rows:  
        1fr minmax(1em, auto);  
}
```

Only direct children become grid or flex items.

Their children return to normal flow.

The following content uses block and inline layout

Block elements extend to fill the container in the inline direction. They break onto a new line. Any inline elements such as a **span** do not break onto a new line.



Media Object

Content inside the flex item returns to normal flow layout.

Unless you change the value of display, elements continue to display using these block and inline rules.



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1

de
Havilland
Canada
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The de Havilland Canada DHC-3 Otter is a single-engine, high-wing, propeller-driven, short take-off and landing (STOL) aircraft.

3



2

Airbus
A380

The Airbus A380 is the world's largest passenger

4



Fokker F27
Friendship

The Fokker F27 Friendship is a turboprop airliner developed and manufactured by the Dutch aircraft manufacturer Fokker.

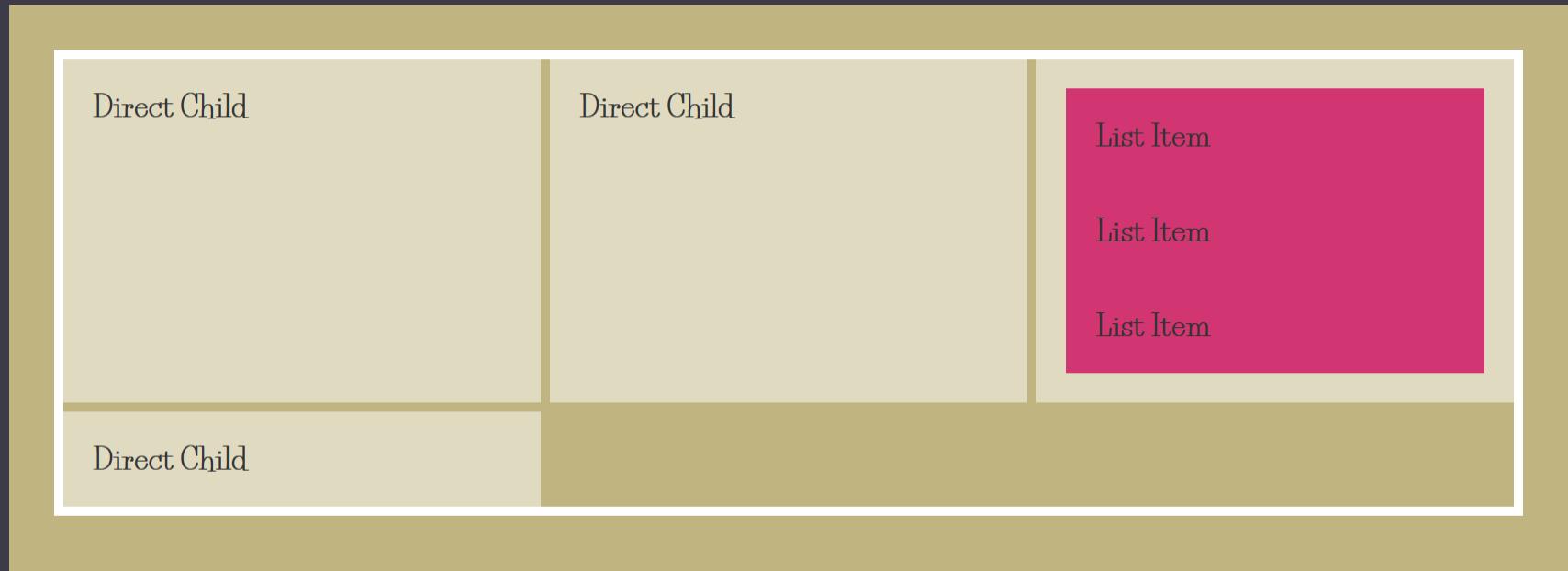


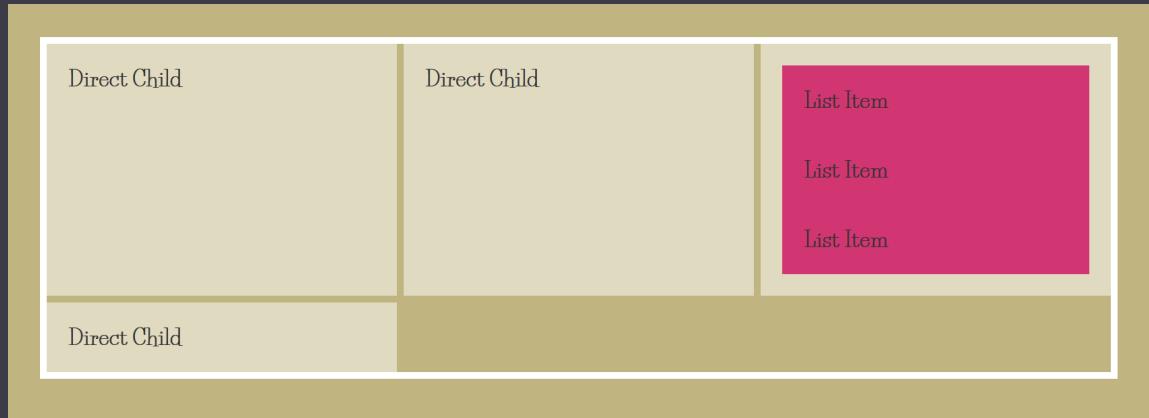
Short
Stirling

The Short Stirling was a British four-engined heavy bomber of WW2

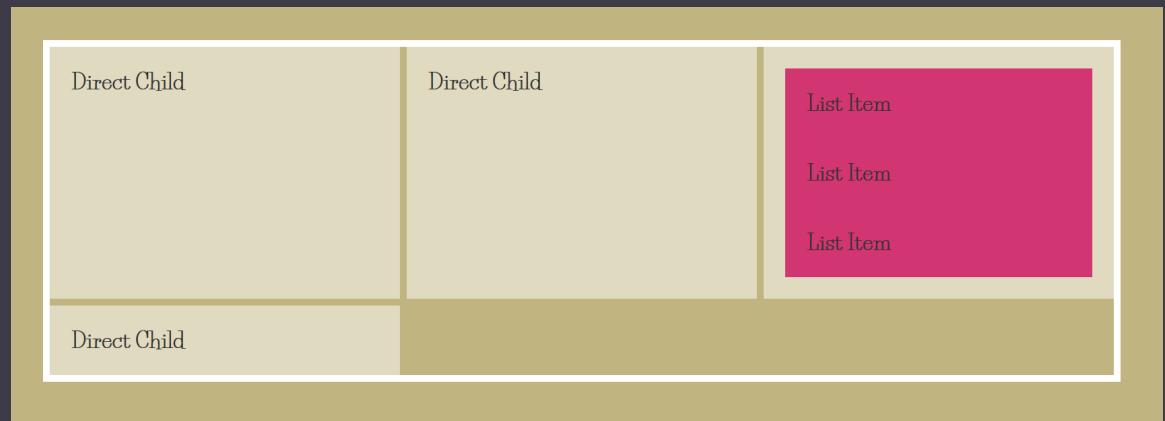
display: contents

Removing the box from the layout.

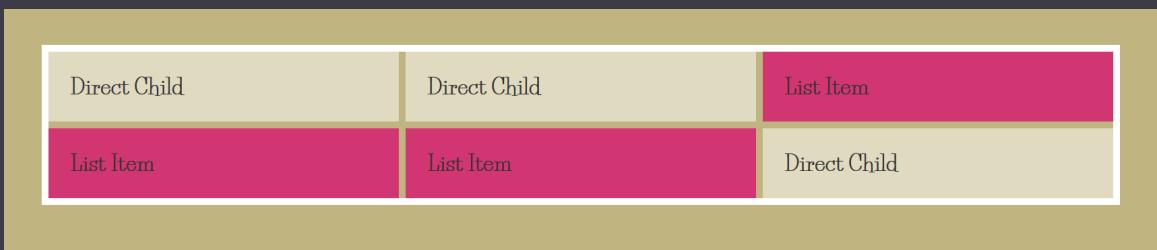




```
<!--HTML-->
<div class="grid">
  <div>Direct Child</div>
  <div>Direct Child</div>
  <ul>
    <li>List Item</li>
    <li>List Item</li>
    <li>List Item</li>
  </ul>
  <div>Direct Child</div>
</div>
```



```
/* CSS */  
.grid {  
  display: grid;  
  grid-template-columns: repeat(3, 1fr);  
}  
  
.grid > * {  
  background-color: rgba(255,255,255,.5);  
}  
  
ul > * {  
  background-color: rgb(209,54,114);  
}  
  
ul {  
}  
}
```



```
/* CSS */  
.grid {  
  display: grid;  
  grid-template-columns: repeat(3, 1fr);  
}  
  
.grid > * {  
  background-color: rgba(255,255,255,.5);  
}  
  
ul > * {  
  background-color: rgb(209,54,114);  
}  
  
ul {  
  display: contents;  
}
```

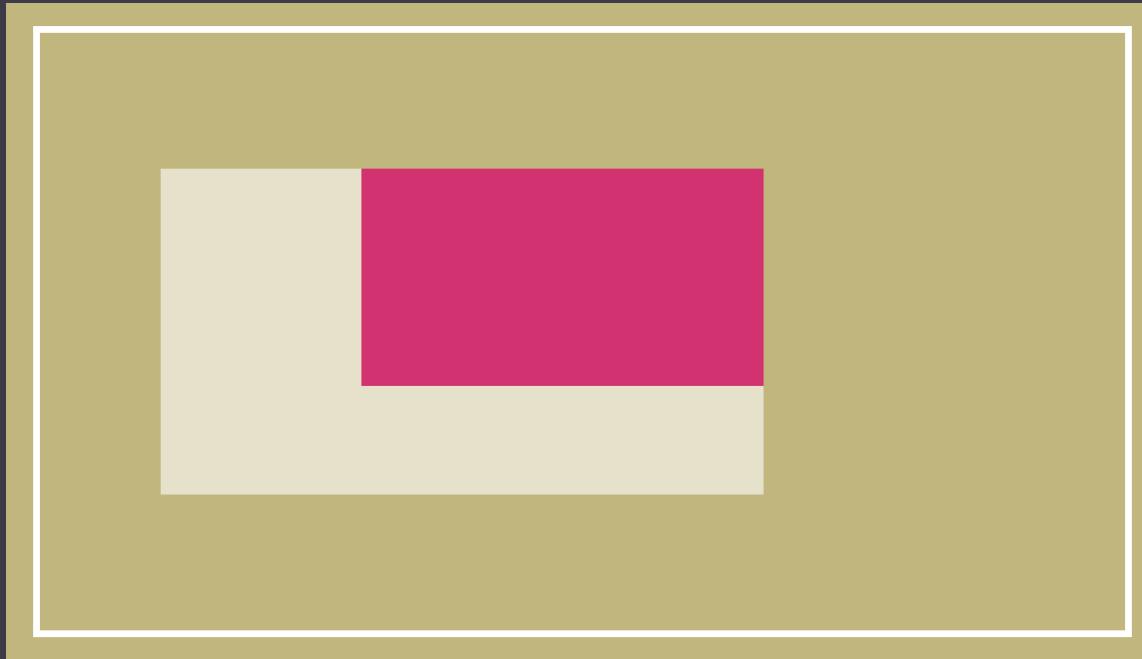
The screenshot shows a Microsoft Edge browser window with the following details:

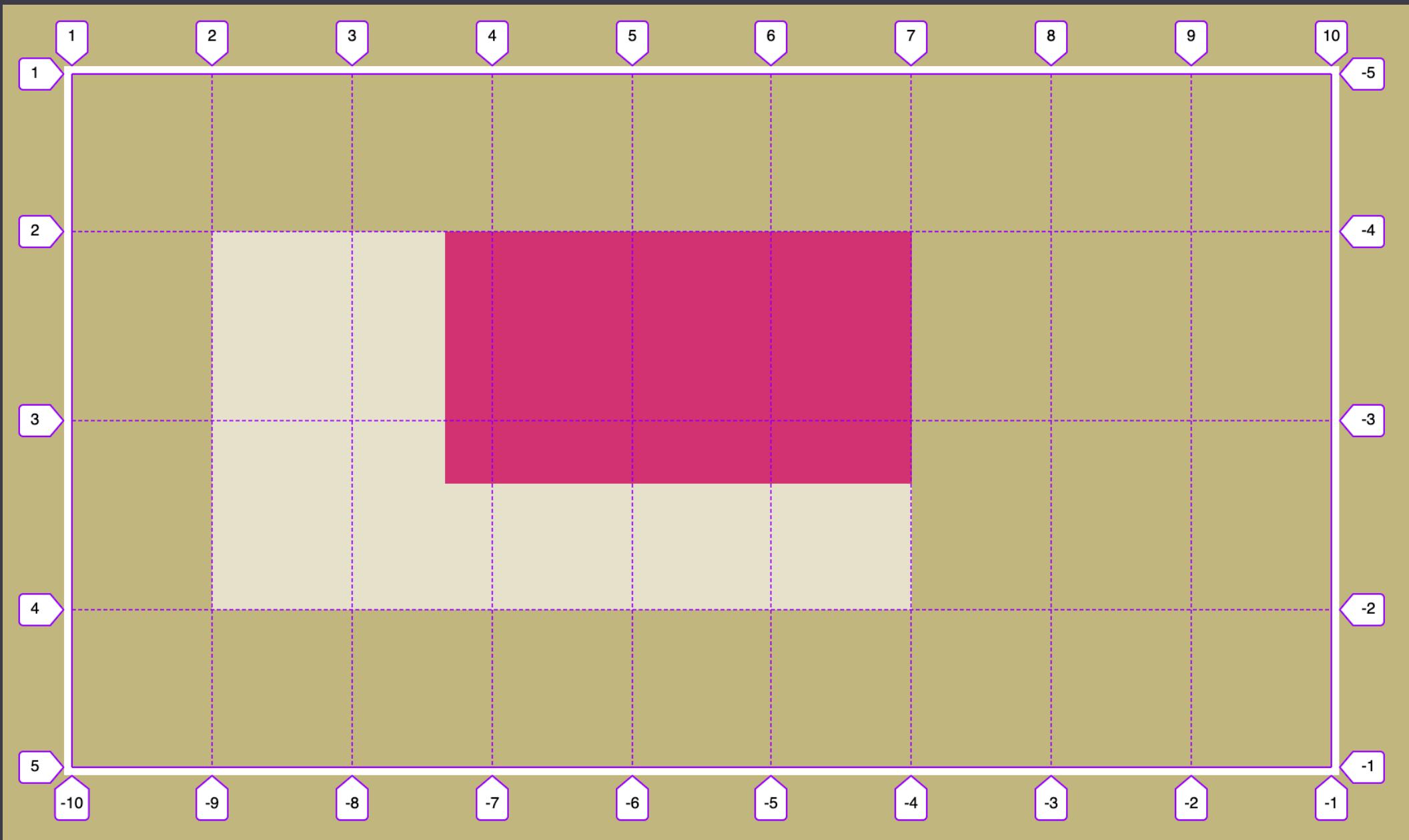
- Title Bar:** "More accessible markup with d X" and a "+" button.
- Address Bar:** "hiddedevries.nl (NL) https://hiddedevries.nl/en/blog/2018-04-21-more-accessible-markup-with-display-content" with icons for refresh, search, and star.
- Header:** A red navigation bar with the website name "hiddedevries.nl" in white. Below it is a white header with links: "What I do", "About me", "Blog" (which is red and underlined), "Talks", and "Contact".
- Main Content:**
 - Section Header:** "More accessible markup with display: contents" in large, bold, dark font.
 - Text:** "Published on 21 April 2018 by Hidde de Vries in code."
 - Text:** "CSS Grid Layout lets you turn an element into a grid, and place the element's *direct children* onto it. Given that, it might be tempting to use flatter markup, but less meaning is usually less accessibility. With `display: contents`, we can place *grand children* on a grid, which lets us have accessible markup *and* beautiful layout. Let's dive into the details!"
 - Text:** "Below, I will explain in more detail what I mean by children and grand children, and then show how we can use `display: contents` to improve this. Note: this is currently broken in supporting browsers, more details below"
 - Section:** "Grid works on direct children"
 - Text:** "In Grid Layout, when a grid is defined on a given element, only direct children of that element become grid items and are layed out on it. To refresh for those not familiar with the syntax, let's look at an example and write a recipe. With this HTML:"

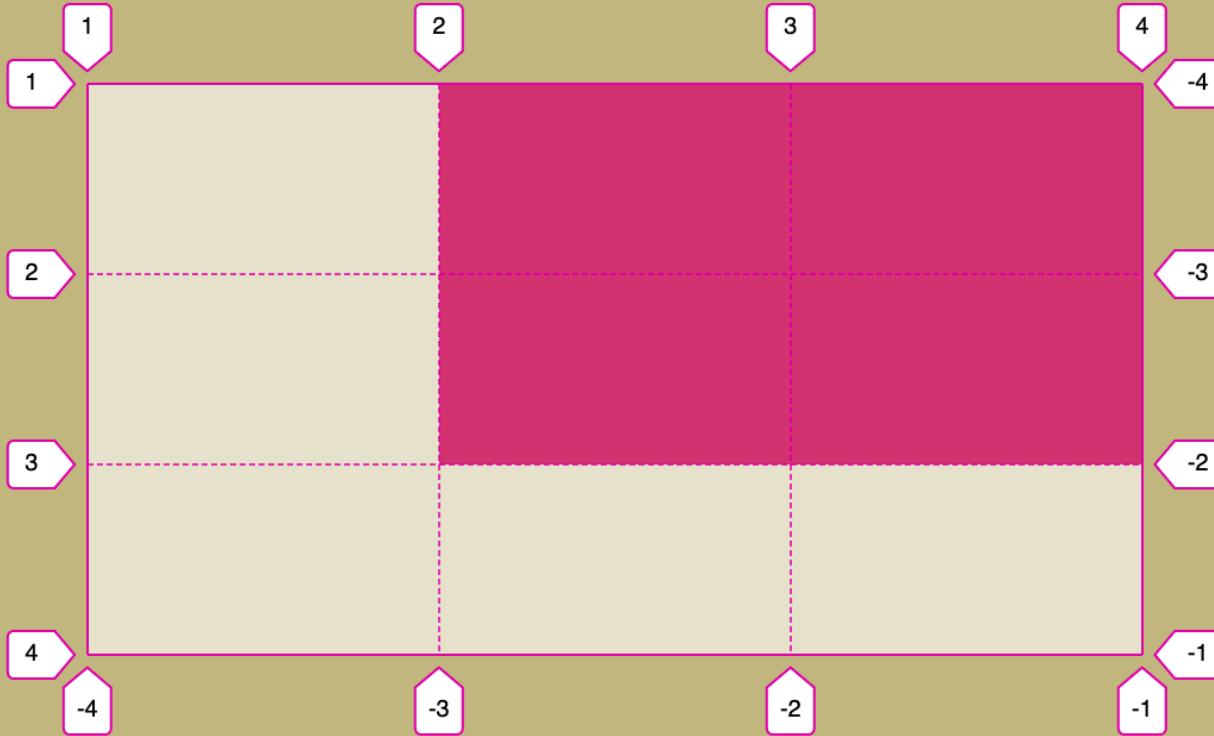
Subgrid

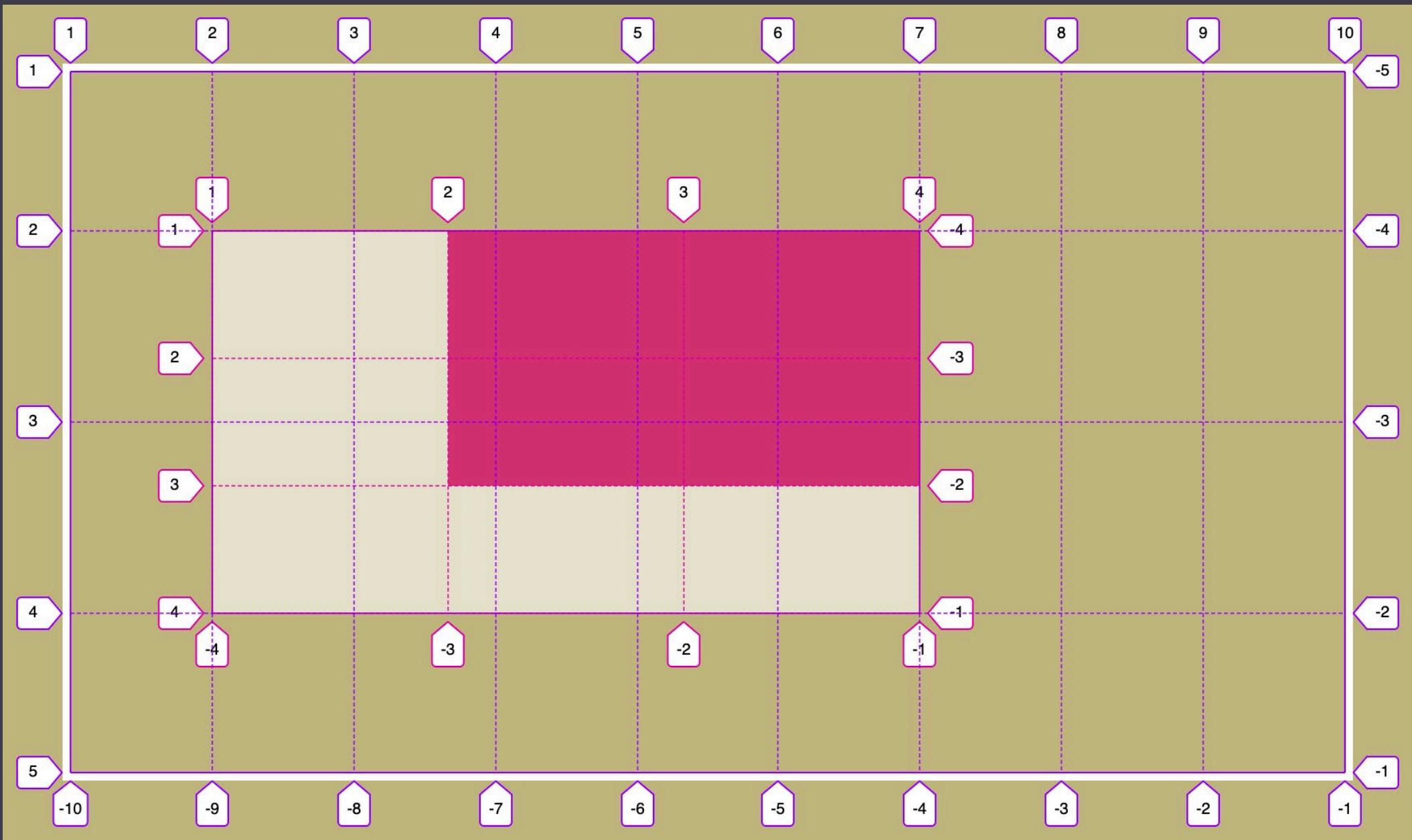
Create a grid on a grid item which uses the grid tracks defined on the parent – for rows, columns or both.

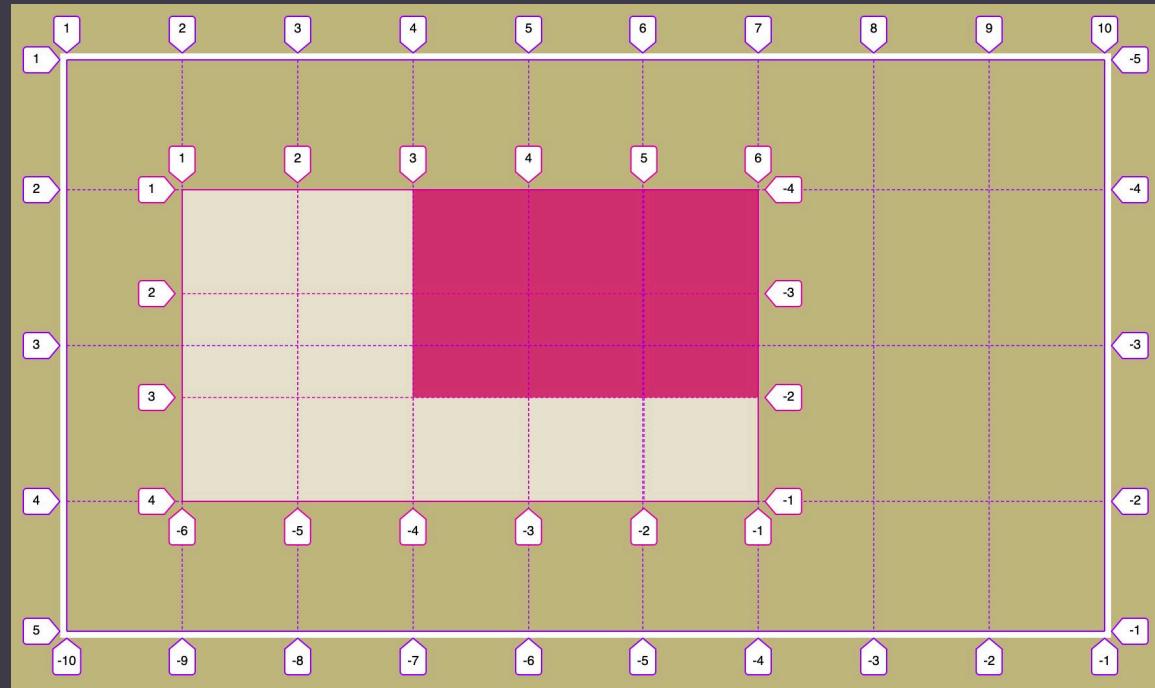
```
.grid {  
  display: grid;  
  grid-template-columns: repeat(9, 1fr);  
  grid-template-rows: repeat(4, minmax(100px,  
auto));  
}  
  
.item {  
  grid-column: 2 / 7;  
  grid-row: 2 / 4;  
  display: grid;  
  grid-template-columns: repeat(3, 1fr);  
  grid-template-rows: repeat(3, 80px);  
}  
  
.subitem {  
  grid-column: 2 / 4;  
  grid-row: 1 / 4;  
}
```











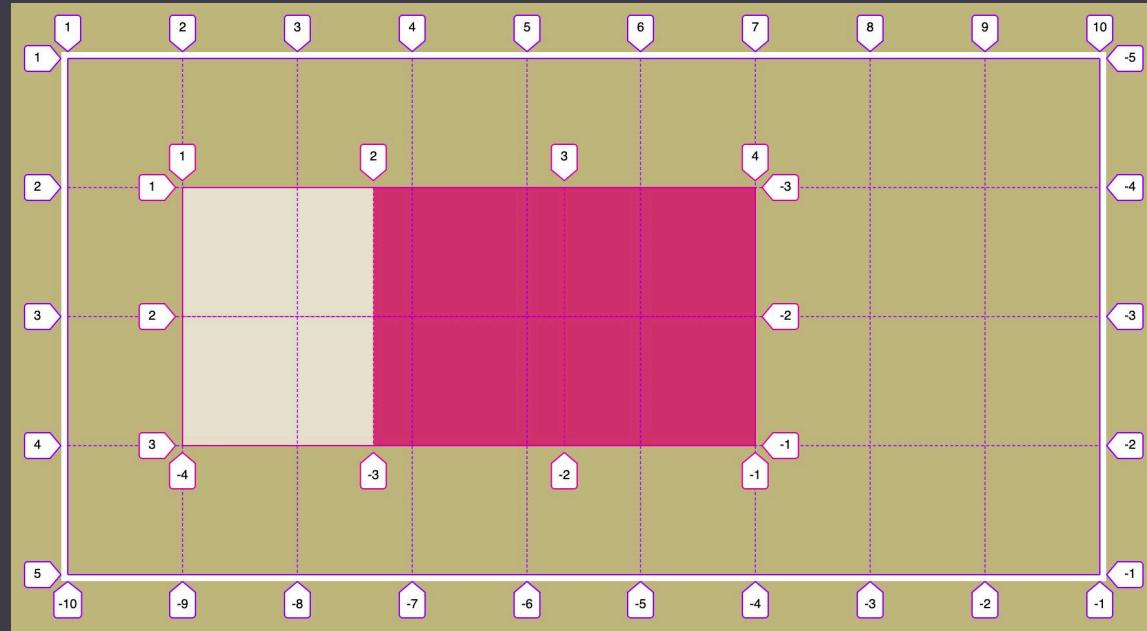
```

.grid {
  display: grid;
  grid-template-columns: repeat(9, 1fr);
  grid-template-rows: repeat(4, minmax(100px,
auto));
}

.item {
  grid-column: 2 / 7;
  grid-row: 2 / 4;
  display: grid;
  grid-template-columns: subgrid;
  grid-template-rows: repeat(3, 80px);
}

.subitem {
  grid-column: 3 / 6;
  grid-row: 1 / 4;
}

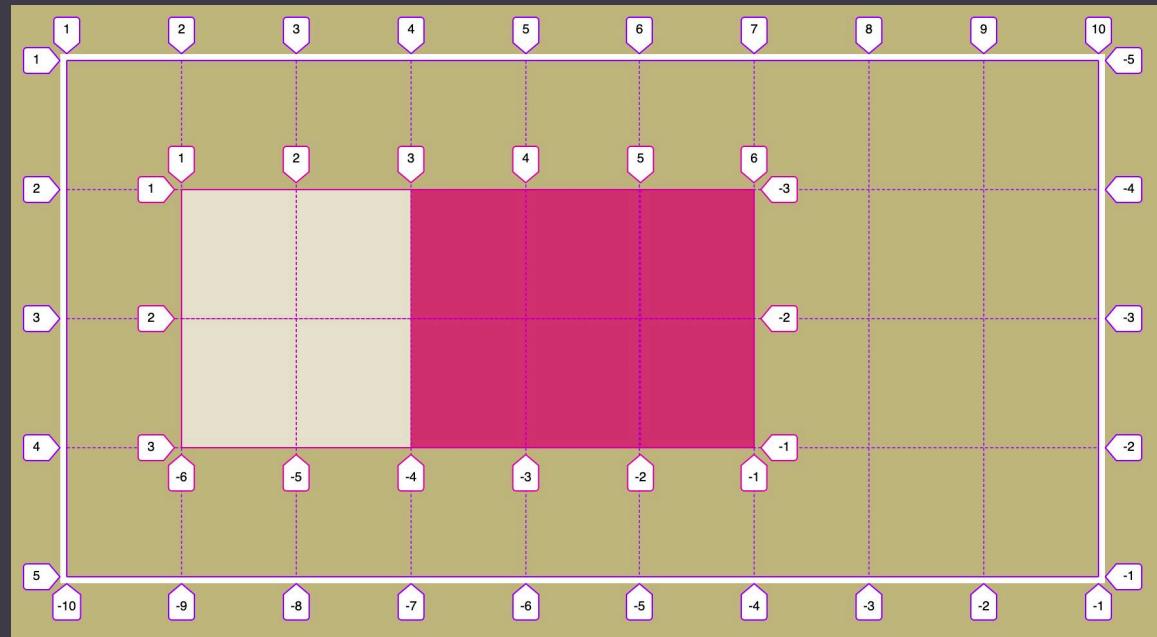
```



```
.grid {
  display: grid;
  grid-template-columns: repeat(9, 1fr);
  grid-template-rows: repeat(4, minmax(100px, auto));
}

.item {
  grid-column: 2 / 7;
  grid-row: 2 / 4;
  display: grid;
  grid-template-columns: repeat(3, 1fr);
  grid-template-rows: subgrid;
}

.subitem {
  grid-column: 2 / 4;
  grid-row: 1 / 3;
}
```



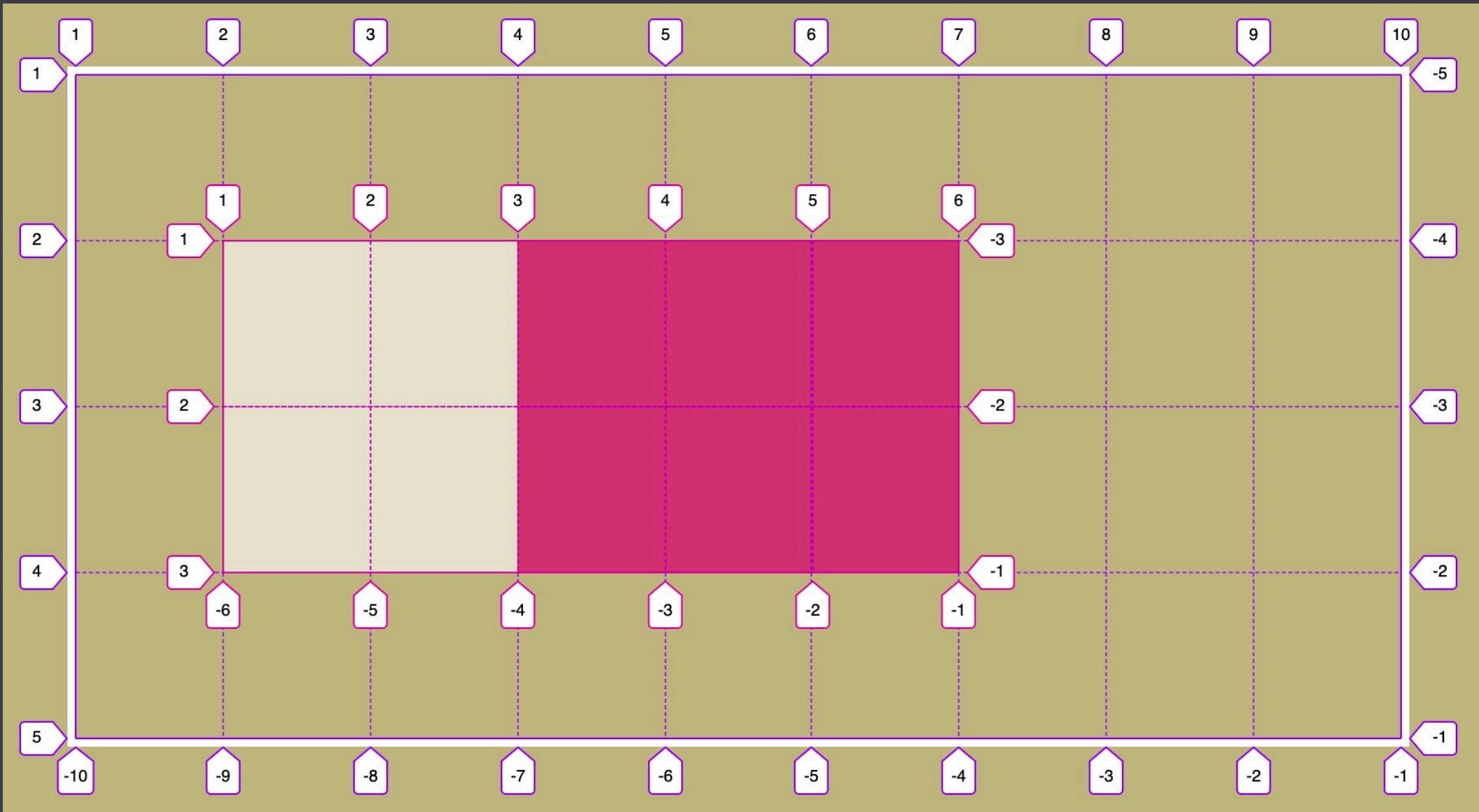
```
.grid {
  display: grid;
  grid-template-columns: repeat(9, 1fr);
  grid-template-rows: repeat(4, minmax(100px, auto));
}

.item {
  grid-column: 2 / 7;
  grid-row: 2 / 4;
  display: grid;
  grid-template-columns: subgrid;
  grid-template-rows: subgrid;
}

.subitem {
  grid-column: 3 / 6;
  grid-row: 1 / 3;
}
```

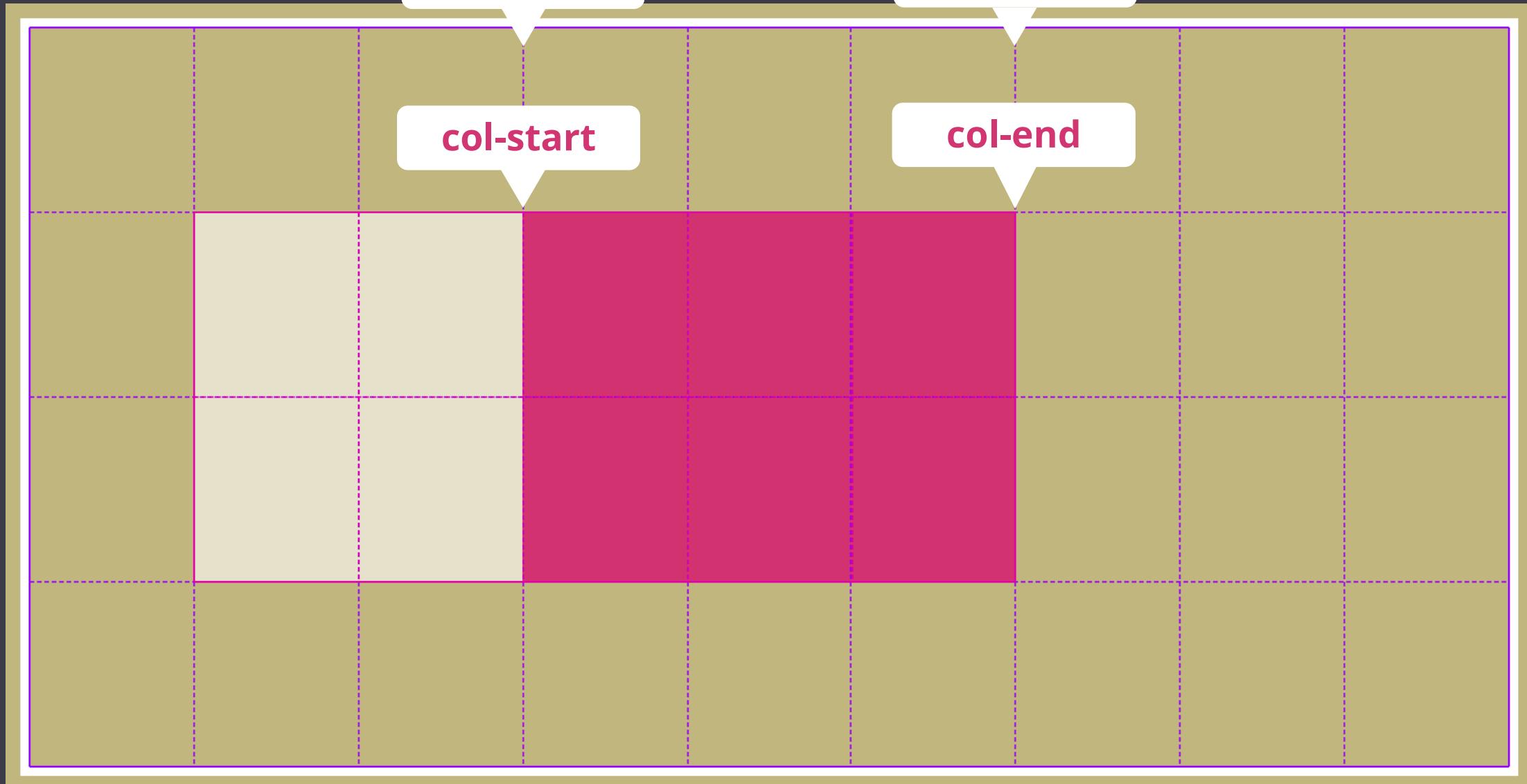
Line **numbers** start from 1 inside the subgrid.

You position child items in the subgrid according to the subgrid line numbering, not those of the parent.



Line **names** on the parent are passed into the subgrid.

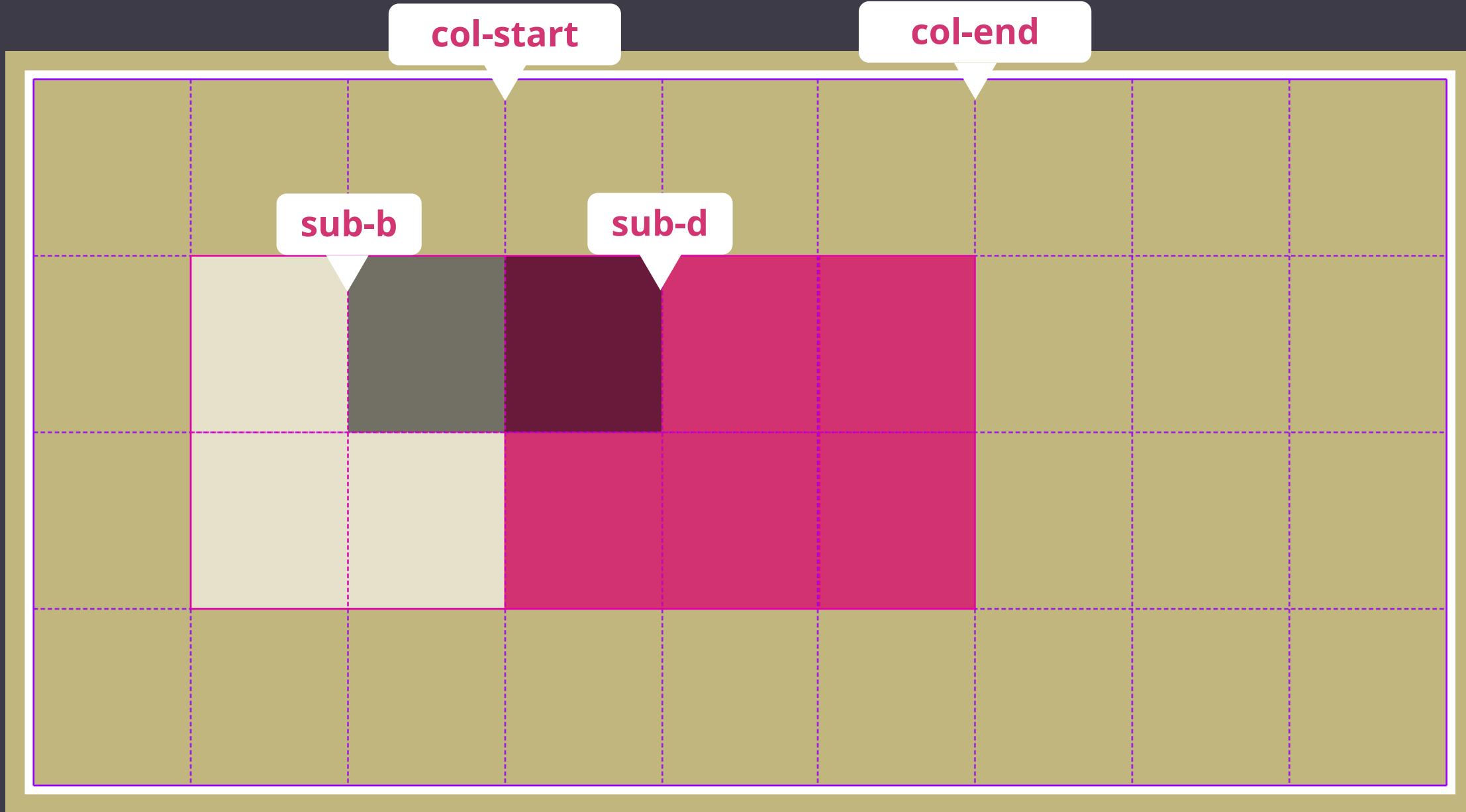
If you have named lines on the parent grid they will be passed into the subgrid and added to any names defined there.



```
.grid {  
  display: grid;  
  grid-template-columns: 1fr 1fr 1fr [col-start] 1fr 1fr 1fr [col-end] 1fr 1fr 1fr;  
  grid-template-rows: repeat(4, minmax(100px, auto));  
}  
  
.item {  
  grid-column: 2 / 7;  
  grid-row: 2 / 4;  
  display: grid;  
  grid-template-columns: subgrid;  
  grid-template-rows: subgrid;  
}  
  
.subitem {  
  grid-column: col-start / col-end;  
  grid-row: 1 / 3;  
}
```

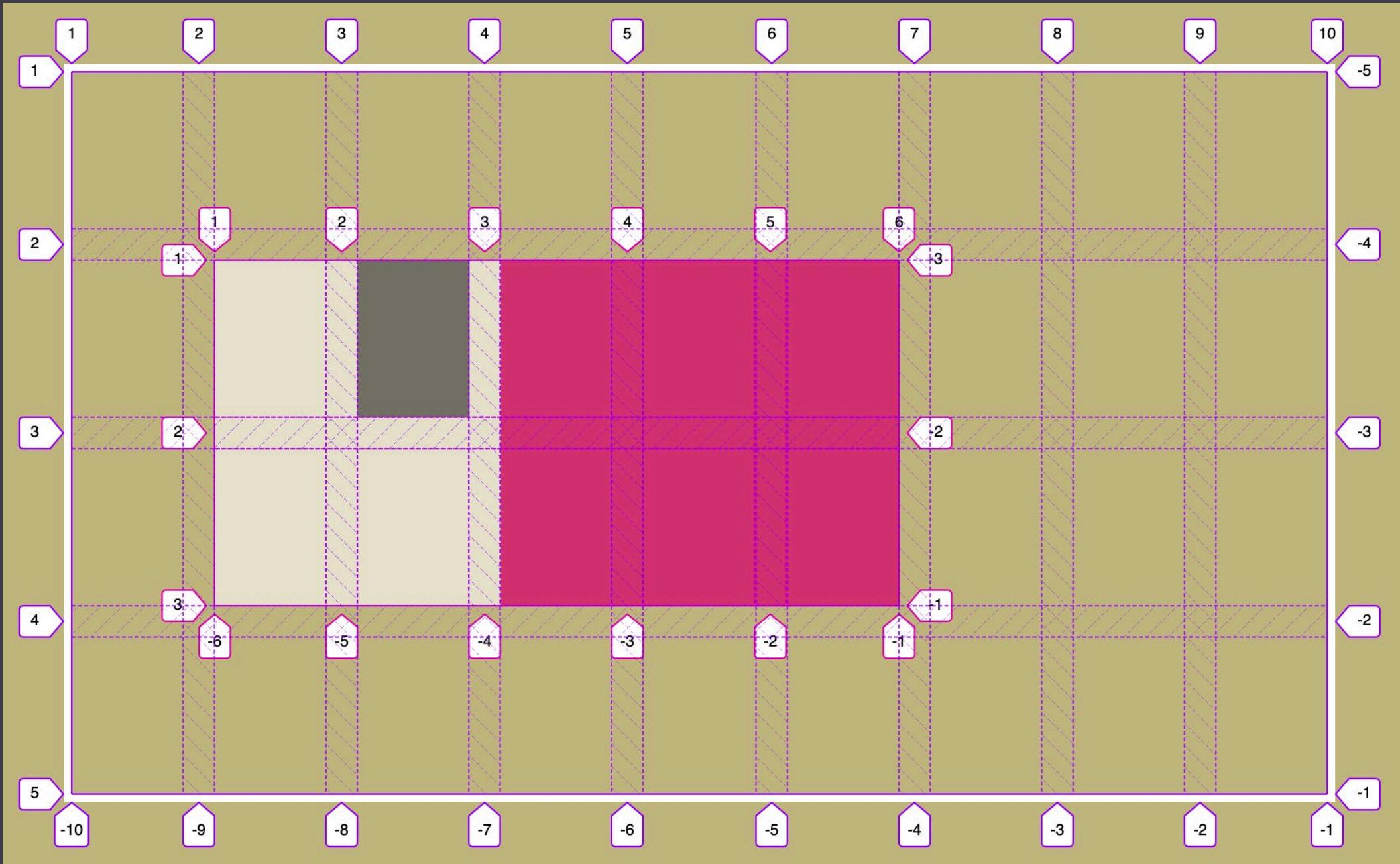
You can **add** named lines
to the subgrid.

Line names are added after the subgrid keyword.

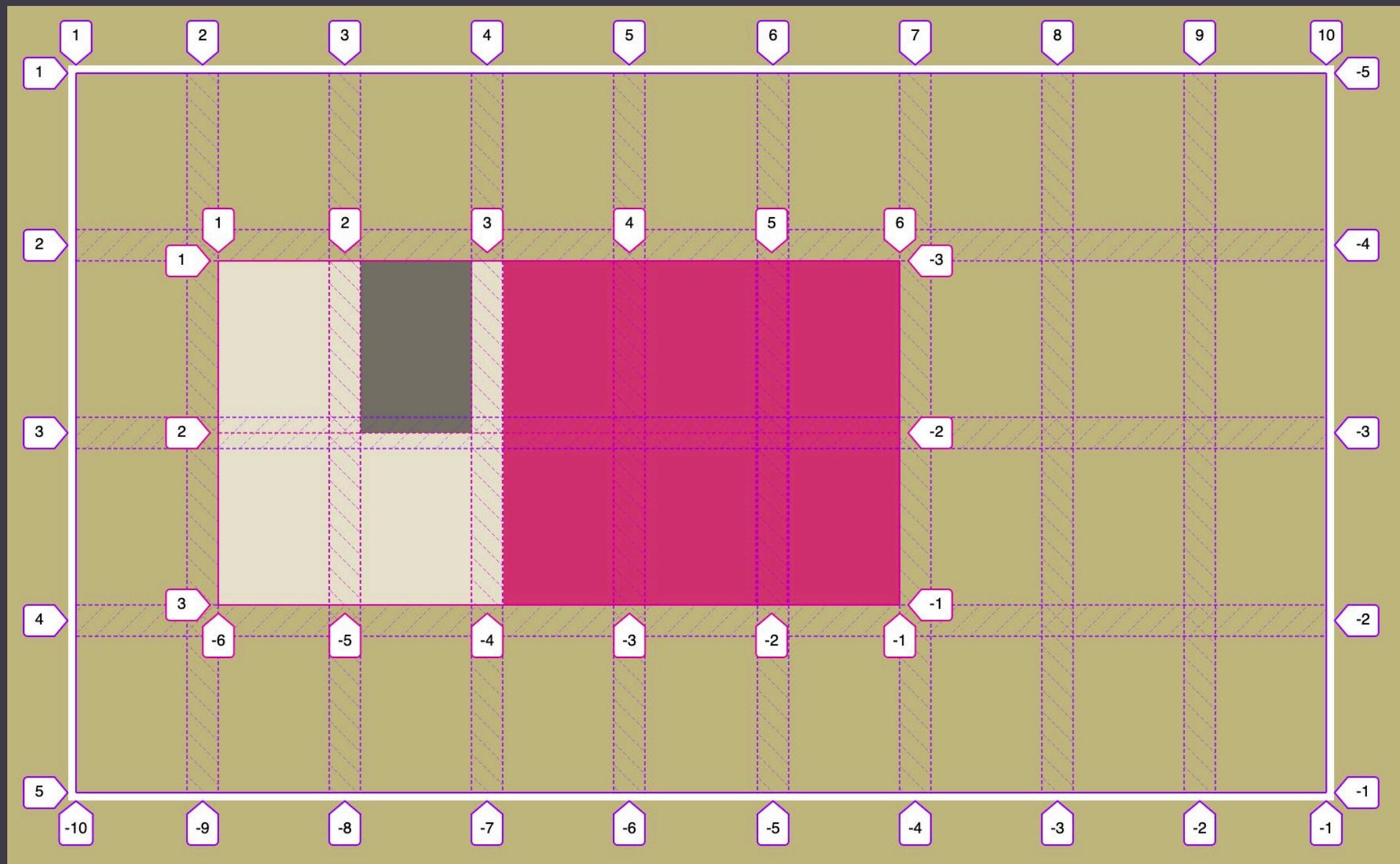


```
.grid {  
  display: grid;  
  grid-template-columns: 1fr 1fr 1fr [col-start] 1fr 1fr 1fr [col-end] 1fr 1fr 1fr;  
  grid-template-rows: repeat(4, minmax(100px, auto));  
}  
  
.item {  
  grid-column: 2 / 7;  
  grid-row: 2 / 4;  
  display: grid;  
  grid-template-columns: subgrid [sub-a] [sub-b] [sub-c] [sub-d] [sub-e] [sub-f];  
  grid-template-rows: subgrid;  
}  
  
.subitem {  
  grid-column: col-start / col-end;  
  grid-row: 1 / 3;  
}  
  
.subitem {  
  grid-column: sub-b / sub-d;  
  grid-row: 1 / 3;  
}
```

The subgrid inherits the
gaps from the parent.



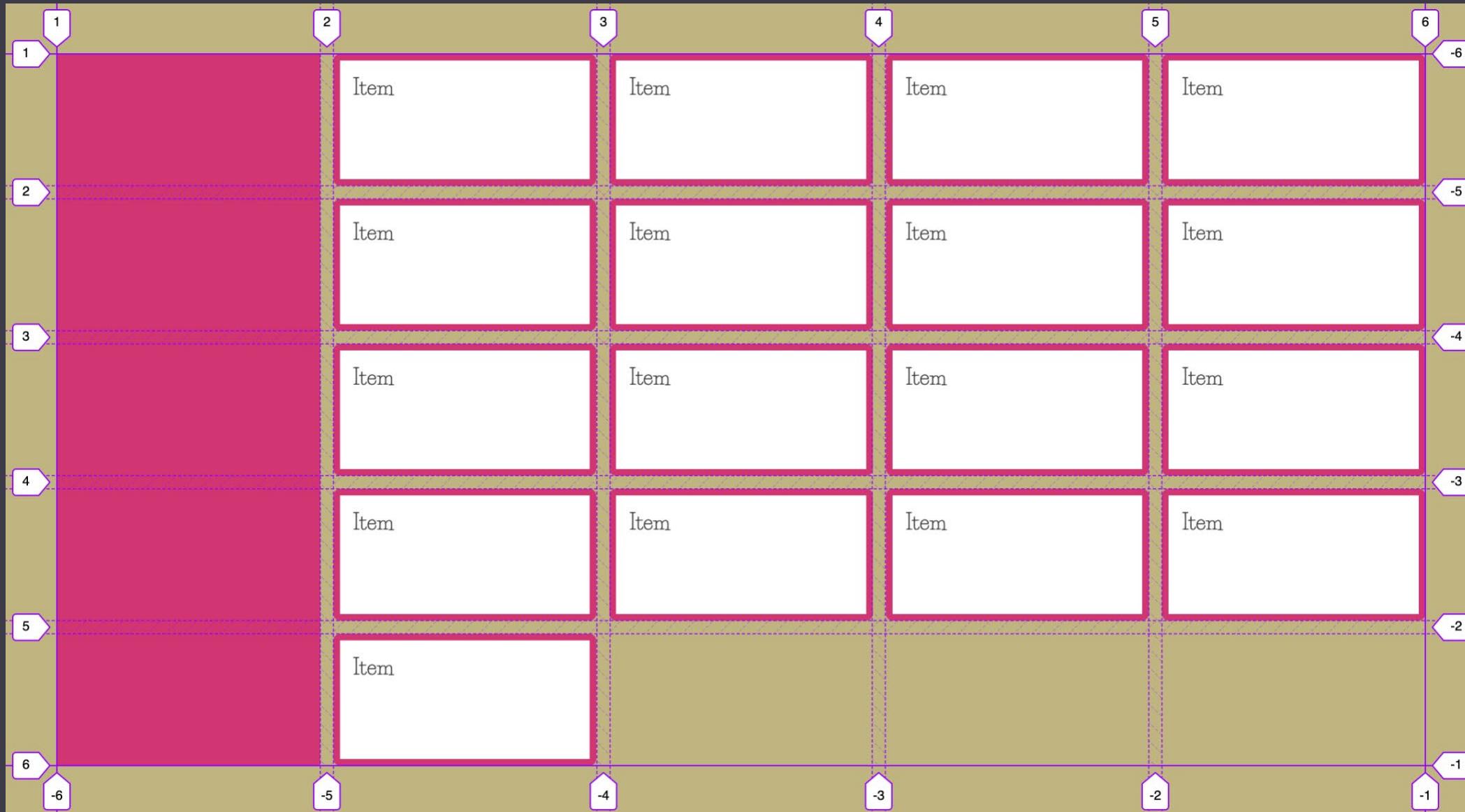
You can **change** the gaps
on the subgrid.

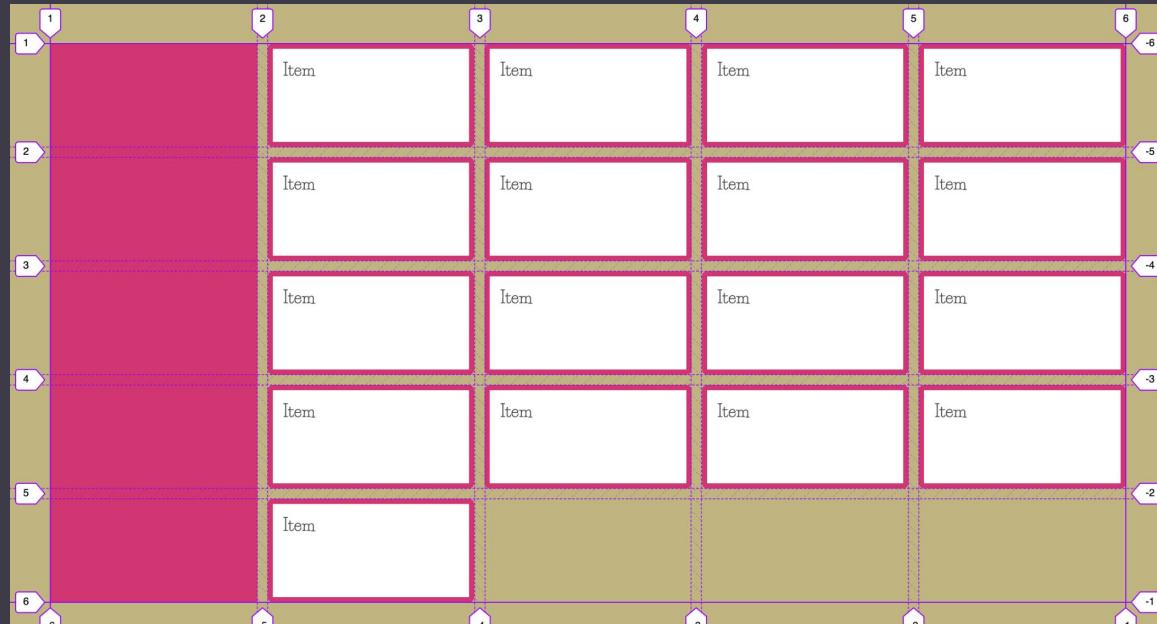


Sizing of items in the subgrid can change the size of the parent tracks.

 <p>de Havilland Canada DHC-3 Otter</p> <p>The de Havilland Canada DHC-3 Otter is a single engined, high-wing propeller-driven, short take-off and landing (STOL) aircraft.</p>	 <p>Airbus A380</p> <p>The Airbus A380 is the world's largest passenger airliner.</p>
 <p>Fokker F27 Friendship</p> <p>The Fokker F27 Friendship is a turboprop airliner developed and manufactured by the Dutch aircraft manufacturer Fokker.</p>	 <p>Short Stirling</p> <p>The Short Stirling was a British four-engined heavy bomber of WW2</p>

Solved by subgrid ...





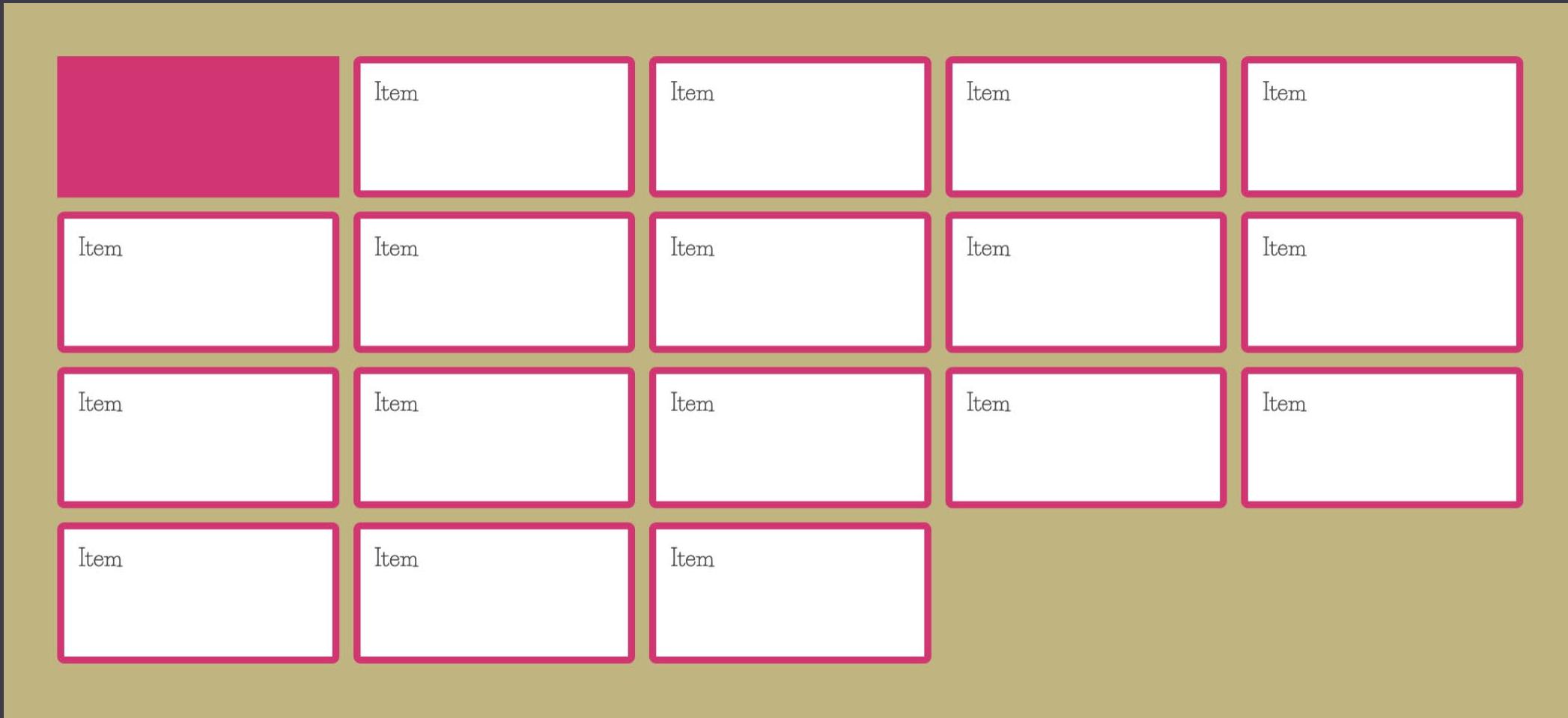
```

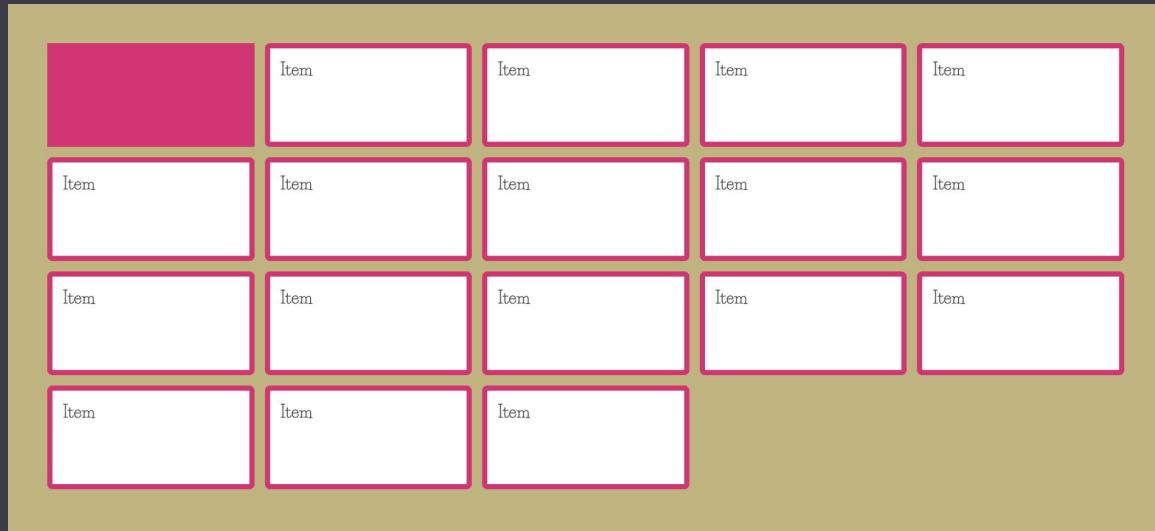
.wrapper {
  display: grid;
  gap: 10px;
  grid-template-columns: repeat(5, 1fr);
  /* 5 explicit rows */
  grid-template-rows:
    repeat(5, minmax(100px, auto));
}

.fullheight {
  background-color: rgb(209,54,114);
  grid-row: 1 / -1;
}

```

Line -1 is the end line of
the **explicit grid**.



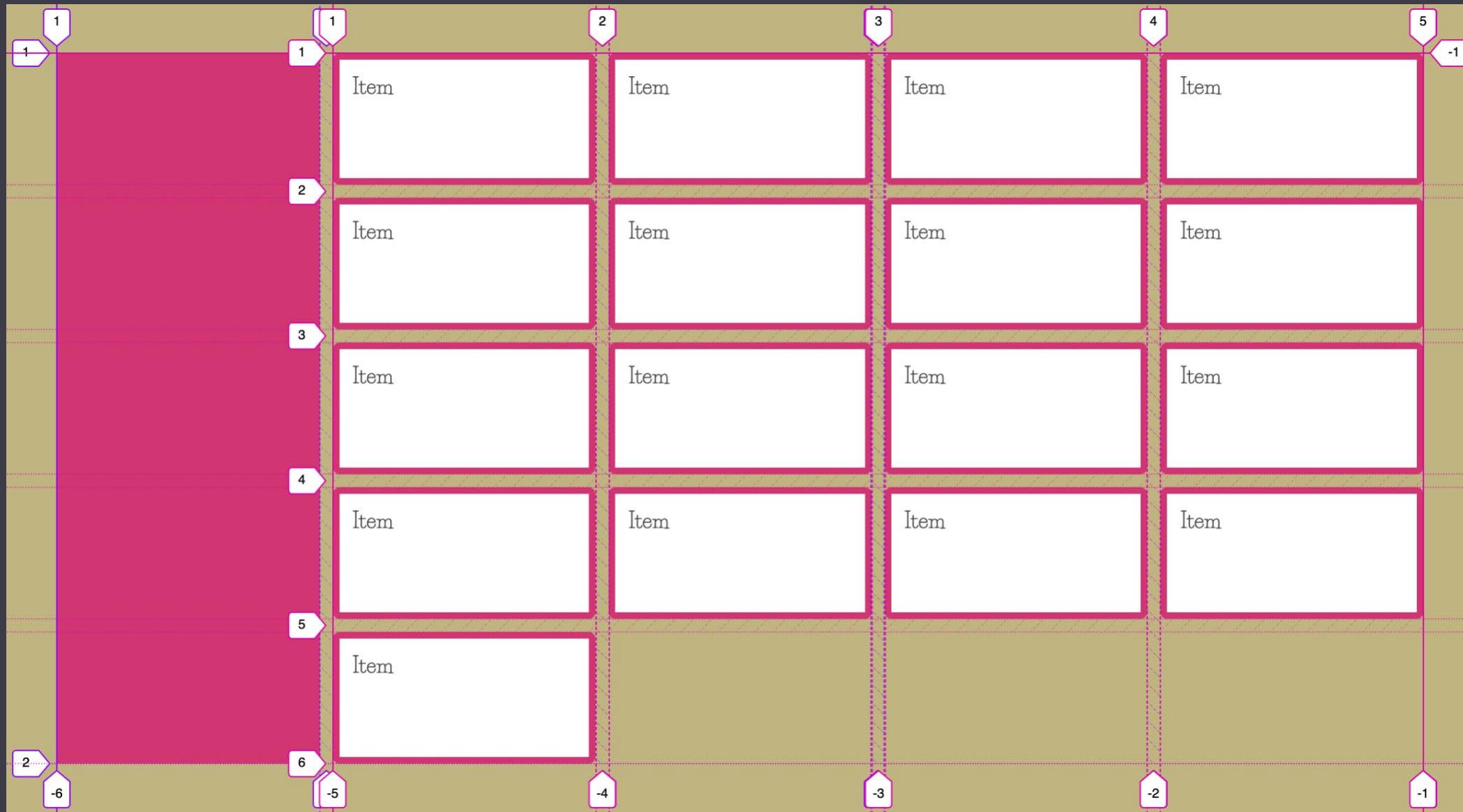


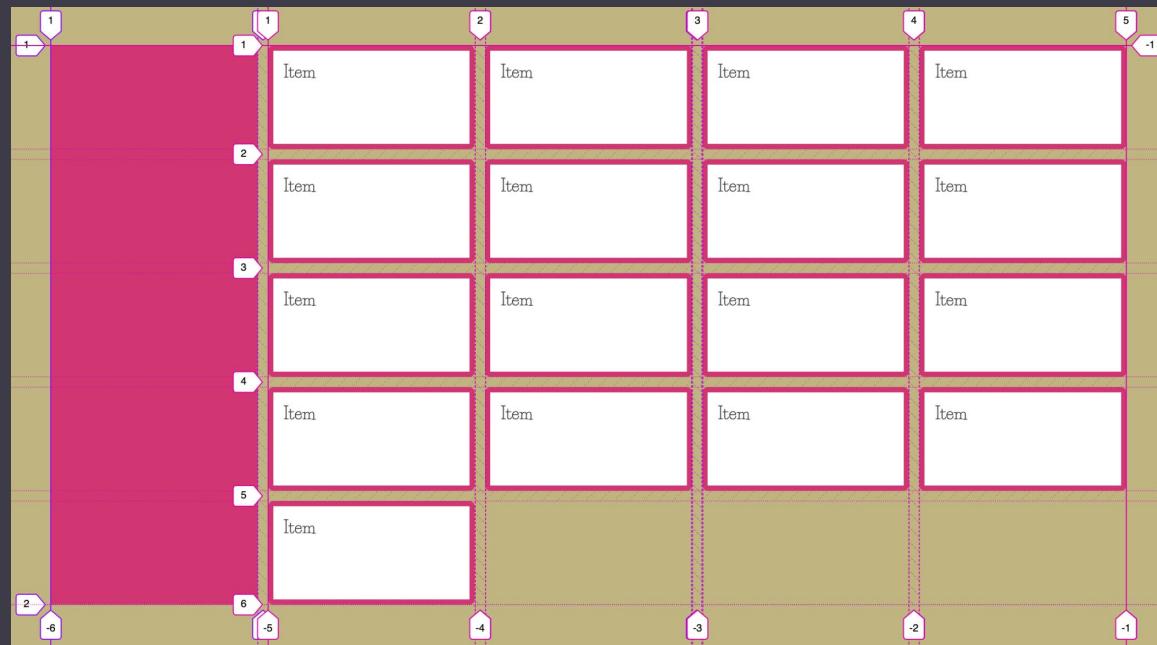
```
.wrapper {  
  display: grid;  
  gap: 10px;  
  grid-template-columns: repeat(5, 1fr);  
  /* no defined explicit rows */  
  grid-auto-rows: minmax(100px, auto);  
}
```

```
.fullheight {  
  background-color: rgb(209,54,114);  
  grid-row: 1 / -1;  
}
```

We can't target the end
line of the **implicit grid**.

Place the items in a
container which uses a
subgrid for columns





```
.wrapper {
  display: grid;
  gap: 10px;
  grid-template-columns: repeat(5, 1fr);
  /* no defined explicit rows */
  grid-auto-rows: minmax(100px, auto);
}

.items {
  grid-column: 2 / -1;
  display: grid;
  grid-template-columns: subgrid;
  grid-auto-rows: minmax(100px, auto);
}

.fullheight {
  background-color: rgb(209,54,114);
  grid-row: 1 / -1;
}
```

Now the bad news

CSS Subgrid

WD

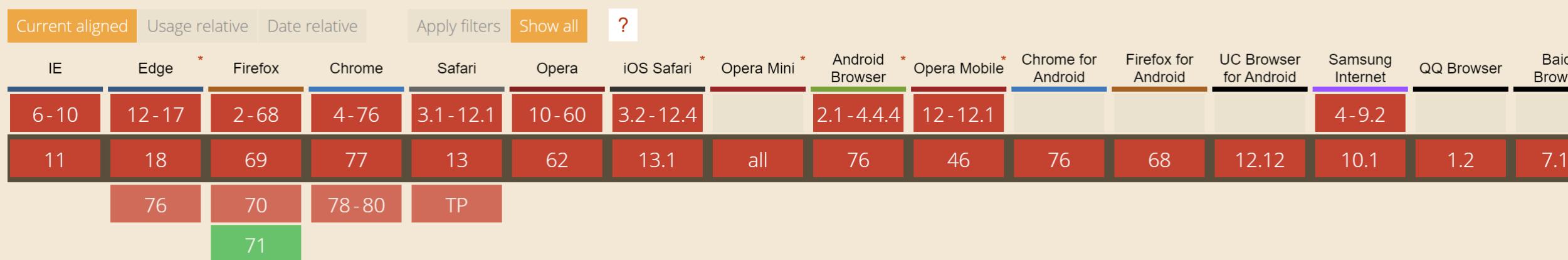
Usage % of all users



Global

0%

Feature of the CSS Grid Layout Module Level 2 that allows a grid-item with its own grid to align in one or both dimensions with its parent grid.



Notes

Known issues (0)

Resources (6)

Feedback

No notes

Slightly better news

Subgrid is in Firefox Nightly and will ship with Firefox 71.

Subgrid columns

<https://codepen.io/rachelandrew/pen/OGKYEK>

Subgrid columns A PEN BY rachelandrew PRO

```

<div class="grid">
  <div class="item">
    <div class="subitem"></div>
  </div>
</div>

```

```

body {
  padding: 2em;
  background-color: rgb(192, 181, 129);
  color: #fff;
}

```

Last saved about 1 month ago

Console Assets Comments Shortcuts Inspector Console Debugger Style Editor Performance Memory Network Storage Accessibility

Rules Layout Computed Changes Fonts Animations

Grid

Overlay Grid

- div.screenshot-description-container
- div.grid
- div.item

Grid Display Settings

- Display line numbers
- Display area names

Fewer rendering engines

fewer places where new ground can be broken.

**Tell browsers what you
want in the platform.**

618969 - [css-grid] Implement subgrid support

https://bugs.chromium.org/p/chromium/issues/detail?id=618969

bugs chromium New issue Open issues Search chromium issues... Sign in

Starred by 13 users

Status: Available
Owner: ---
Cc: ifernan...@igalia.com
r...@igalia.com
svil...@igalia.com
Components: Blink>Layout>Grid
EstimatedDays: ---
NextAction: ---
OS: All
Pri: 3
Type: Feature
Hotlist-Recharge-Cold

Blocking:
issue 79180

[Sign in](#) to add a comment

Issue 618969: [css-grid] Implement subgrid support

Reported by r...@igalia.com on Fri, Jun 10, 2016, 11:24 AM GMT+1

There's a new reduced subgrid proposal that we could try to implement at some point.

The spec section: <https://drafts.csswg.org/css-grid/#subgrids>

Just reporting the bug to keep track of it and use it as meta-bug during the implementation.

[Comment 1](#) by m...@mko.io on Sun, Jun 12, 2016, 9:56 AM GMT+1
This makes grid really useful!

[Comment 2](#) by sheriffbot@chromium.org on Mon, Jun 12, 2017, 4:05 PM GMT+1
Labels: Hotlist-Recharge-Cold
Status: Untriaged (was: Available)

This issue has been Available for over a year. If it's no longer important or seems unlikely to be fixed, please consider closing it out. If it is important, please re-triage the issue.

Sorry for the inconvenience if the bug really should have been left as Available. If you change it back, also remove the "Hotlist-Recharge-Cold" label.

For more details visit <https://www.chromium.org/issue-tracking/autotriage> - Your friendly Sheriffbot

[Comment 3](#) by e...@chromium.org on Mon, Jun 12, 2017, 6:55 PM GMT+1
Labels: -Type-Bug Type-Feature
Status: Available (was: Untriaged)

[Comment 4](#) by svil...@gmail.com on Fri, Jun 23, 2017, 4:39 PM GMT+1
It's just simply delayed. Subgrids were moved to Level 2 of the specs, so they are not a priority at all ATM. But it'll be eventually implemented.

[Comment 5](#) by sheriffbot@chromium.org on Mon, Jun 25, 2018, 5:04 PM GMT+1
Status: Untriaged (was: Available)

This issue has been Available for over a year. If it's no longer important or seems unlikely to be fixed, please consider closing it out. If it is important, please re-triage the issue.

Sorry for the inconvenience if the bug really should have been left as Available.

For more details visit <https://www.chromium.org/issue-tracking/autotriage> - Your friendly Sheriffbot

[Comment 6](#) by r...@igalia.com on Tue, Jun 26, 2018, 8:56 AM GMT+1
Status: Available (was: Untriaged)

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<https://bugs.chromium.org/p/chromium/issues/detail?id=618969>



Write about features you want to see in browsers

Write up your use cases, the problems having the feature will solve.

Use new features

Browsers are watching.

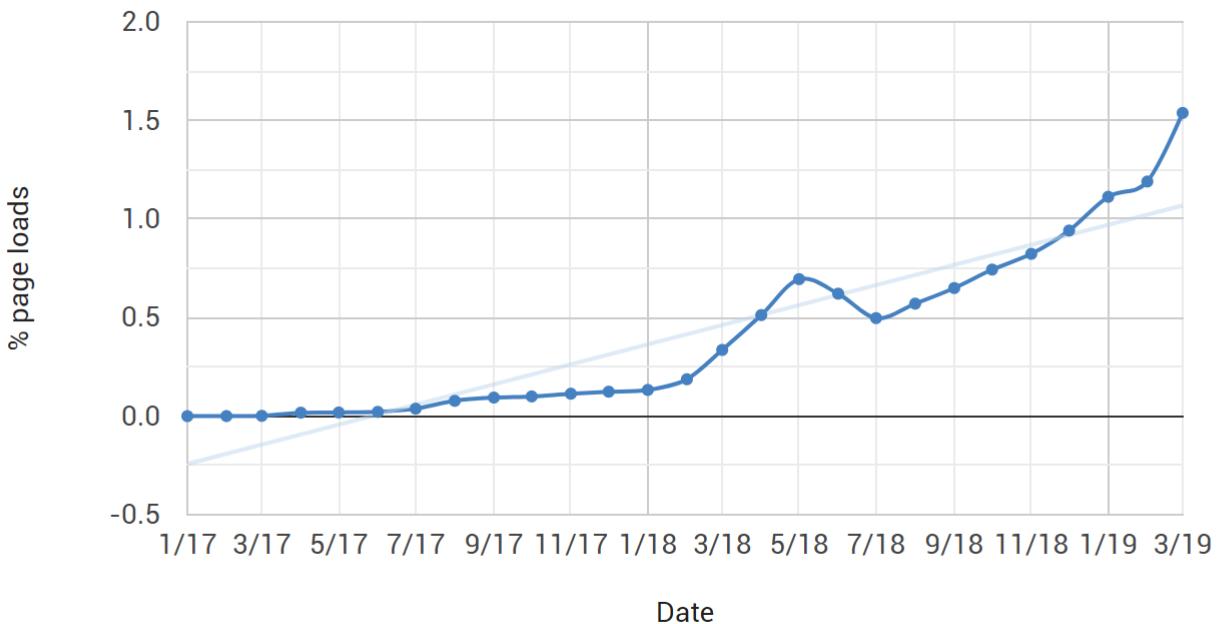
Use of CSS properties over time.

grid-template-rows

Show all historical data:

Percentage of page loads that use this feature

The chart below shows the percentage of page loads (in Chrome) that use this feature at least once. Data is across all channels and platforms.



Use new features when they are behind a flag

You get to beta test the web platform!

Give feedback to the CSS Working Group

<https://github.com/w3c/csswg-drafts/issues>

Issues · w3c/csswg-drafts

GitHub, Inc. (US) https://github.com/w3c/csswg-drafts/issues 110% ⚡

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1,346 Open ✓ 1,835 Closed Author Labels Projects Milestones Assignee Sort

① [css-text-4] white-space:break-spaces is in level 3 but not level 4 #3794 opened 10 hours ago by litherum 3

① [css-color-4] Paint order of non-positioned stacking context #3793 opened 12 hours ago by SimonSapin 1

① [css-transitions] What defines that unconnected elements don't transition? #3790 opened a day ago by birtles 3

① [css-font-loading-3] Relationship between FontFace and CSSFontFaceRule #3787 opened 2 days ago by litherum 1

① [css-text-3] "hang" definition refers to punctuation, but also applies to white space #3784 opened 2 days ago by heycam

① [css-animations] Animations should be allowed on linear/radial gradients #3783 opened 2 days ago by SetTrend 3

① [css-page-floats] should intersect with [css-page] #3780 opened 3 days ago by v-python 2

① [css-overflow] Overflow propagation when the element propagated from is display: none Agenda+ #3779 opened 5 days ago by emilio 6

Participate in the web platform

Or you are leaving your future as a designer or developer in
the hands of the very few who do.

Thank you

@rachelandrew