

Grids *All The Way* Down

@rachelandrew at Frontend NE 2019

Hello Newcastle

It's nice to be home.

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.

CSS Flexible Box Layout Module

- CR

Method of positioning elements in horizontal or vertical stacks. Support includes all properties prefixed with `flex`, as well as `display: flex`, `display: inline-flex`, `align-content`, `align-items`, `align-self`, `justify-content` and `order`.

Usage

% of all users

?

Global

94.89% + 3.34% =

98.24%

unprefixed:

94.52% + 2.29% =

96.82%

U.K.

93.13% + 2.78% =

95.91%

unprefixed:

92.35% + 2.06% =

94.41%

Current aligned

Usage relative

Date relative

Apply filters

Show all

?

IE	Edge	Firefox	Chrome	Safari	iOS Safari	Opera Mini	Chrome for Android	UC Browser for Android	Samsung Internet
			71						
	17	65	72		11.4				4
11	18	66	73	12	12.1	all	71	11.8	8.2
		67	74	12.1	12.2				
		68	75	TP					
			76						

Notes

Known issues (9)

Resources (13)

Feedback

Most partial support refers to supporting an older version of the specification or an older syntax.

4 Partial support is due to large amount of bugs present (see known issues)

CSS Grid Layout (level 1)

- CR

Method of using a grid concept to lay out content, providing a mechanism for authors to divide available space for layout into columns and rows using a set of predictable sizing behaviors. Includes support for all `grid-*` properties and the `fr` unit.

Usage

% of all users

?

Global

89.42% + 2.56% =

91.98%

unprefixed:

89.42%

U.K.

89.1% + 2.39% =

91.49%

unprefixed:

89.1%

Current aligned

Usage relative

Date relative

Apply filters

Show all

?

IE	Edge	Firefox	Chrome	Safari	iOS Safari	Opera Mini	Chrome for Android	UC Browser for Android	Samsung Internet
			71						
	17	65	72		11.4				4
11	18	66	73	12	12.1	all	71	11.8	8.2
		67	74	12.1	12.2				
		68	75	TP					
			76						

Notes

Known issues (3)

Resources (13)

Feedback

See also support for subgrids

2 Partial support in IE refers to supporting an older version of the specification.

Slides & resources <https://noti.st/rachelandrew>

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-engine 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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Short
Stirling

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



Cessna
172

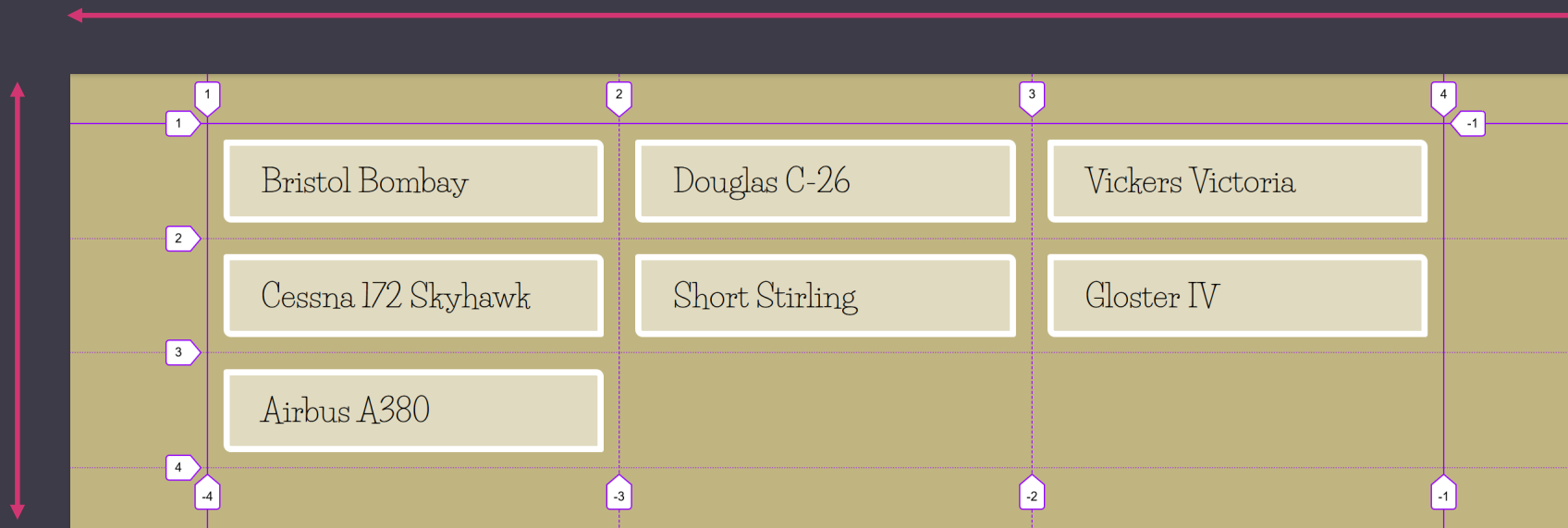
The Cessna 172 is a four seat, single engine aircraft.

Two-dimensional

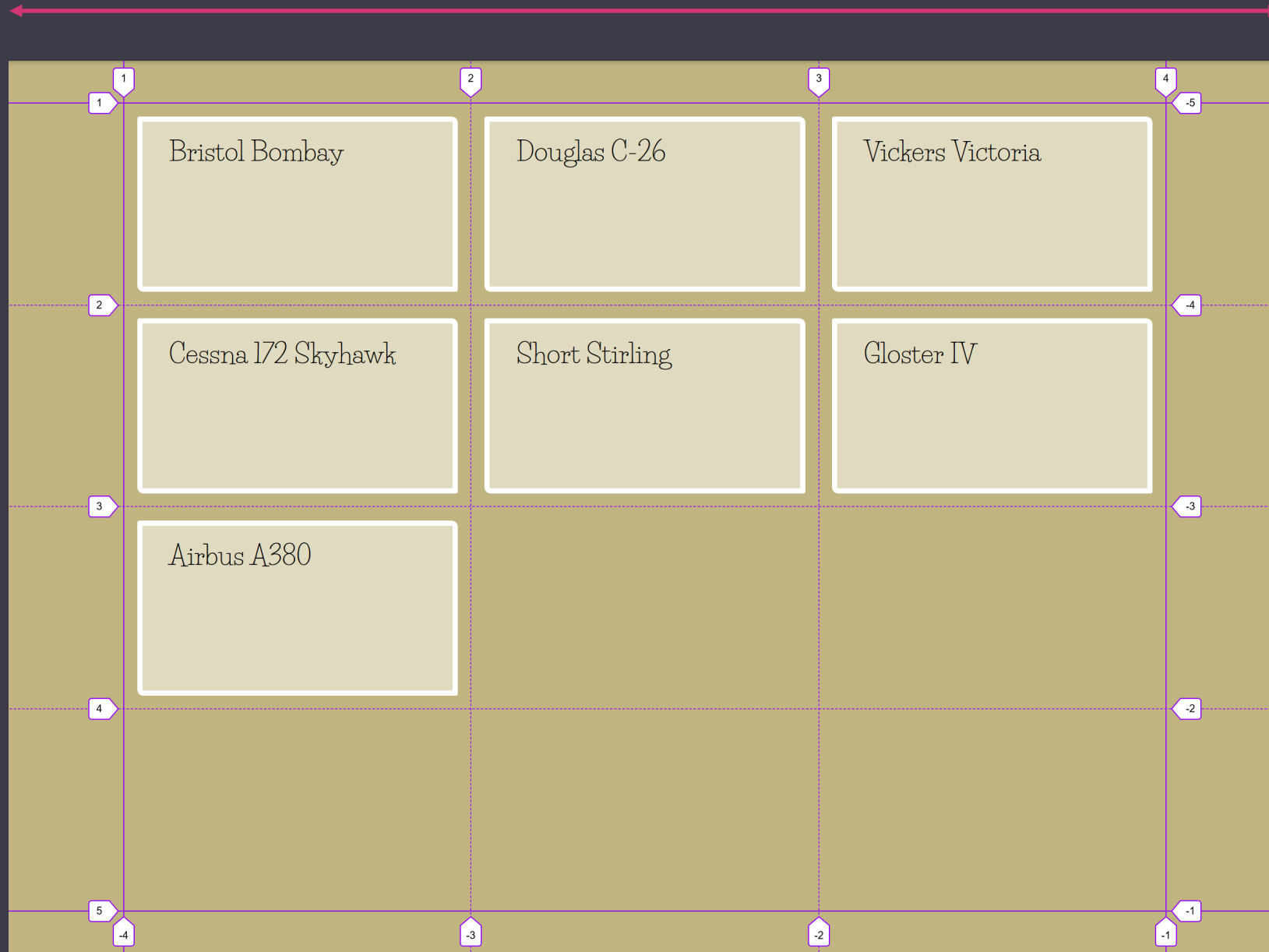
Grid works in the same way in both axes.

Inline dimension: the grid fills the grid container

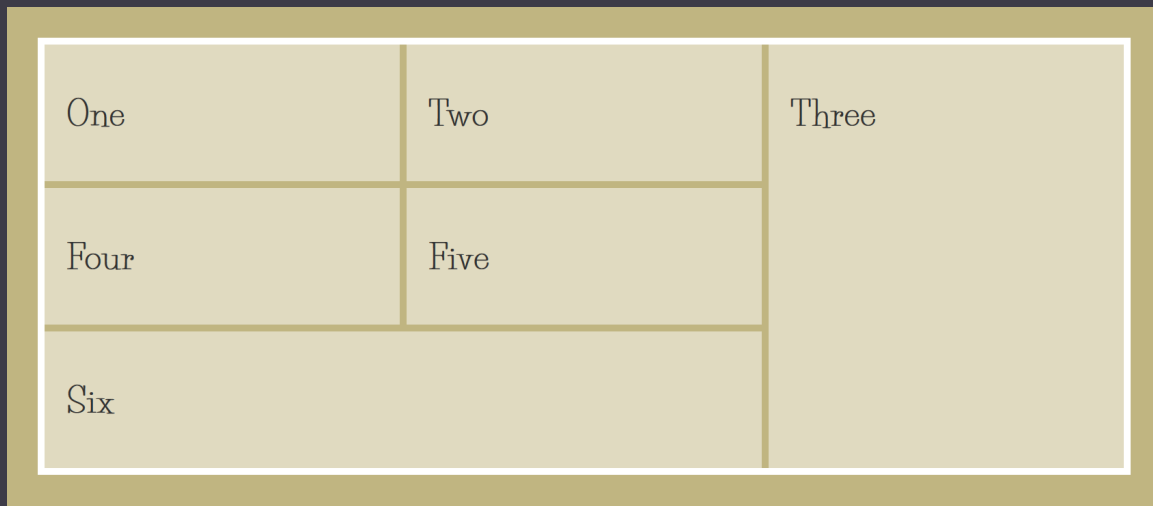
Block dimension:
as tall as is
needed for the
content.



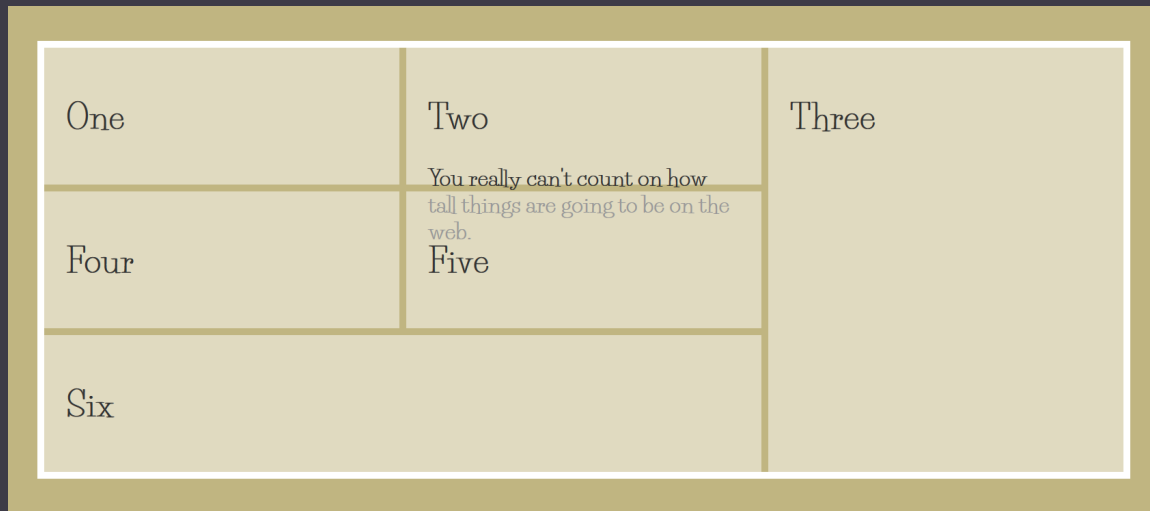
Inline dimension: the grid fills the grid container



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.

What can't we do yet?



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



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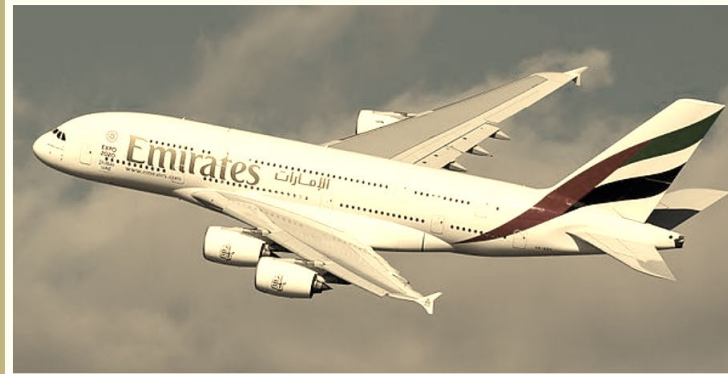
Short
Stirling

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



de
Havilland
Canada
DHC-3
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1

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Havilland
Canada
DHC-3
Otter

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

4



2

Airbus
A380

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4



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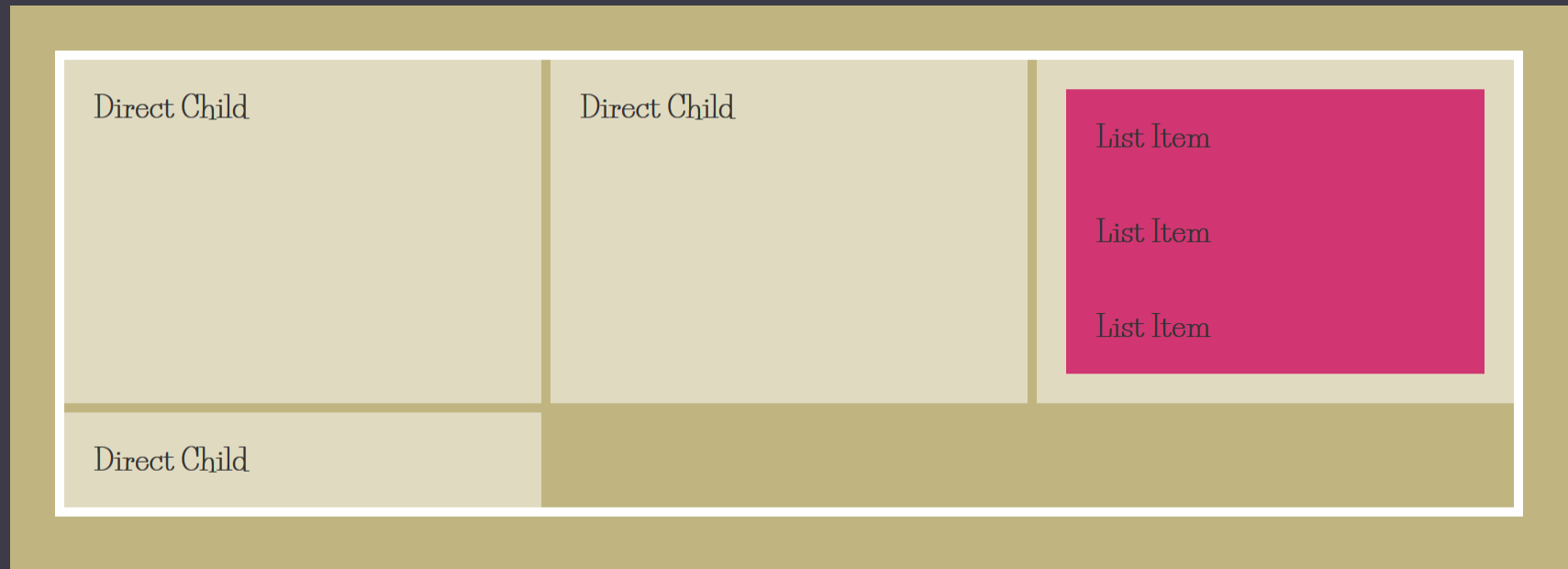


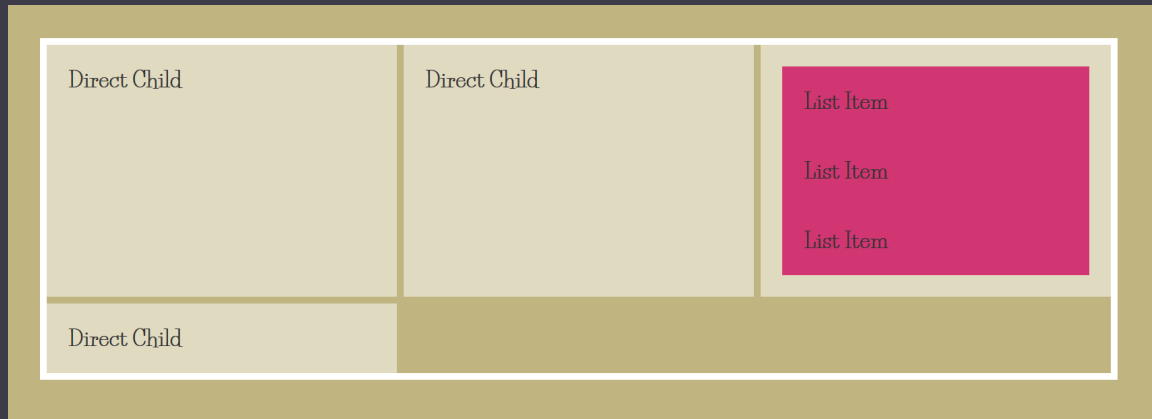
Short
Stirling

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

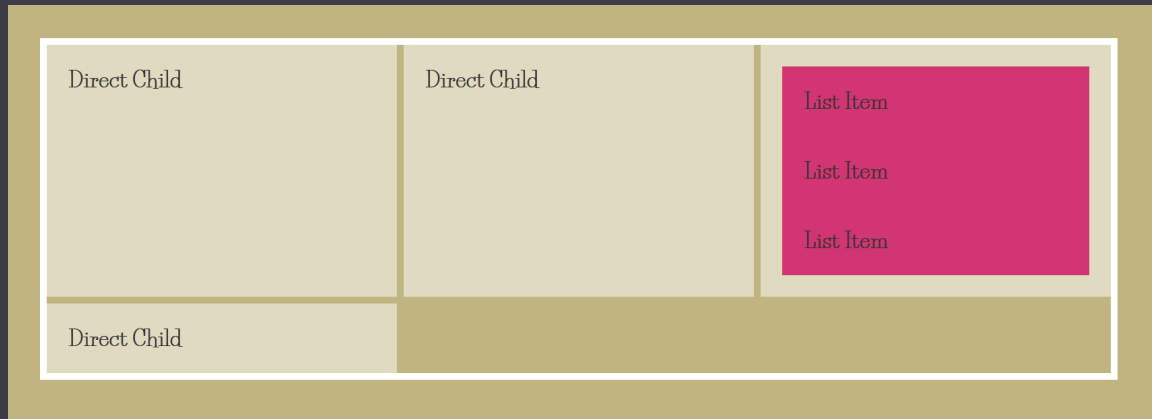
display: contents

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 {
}
```

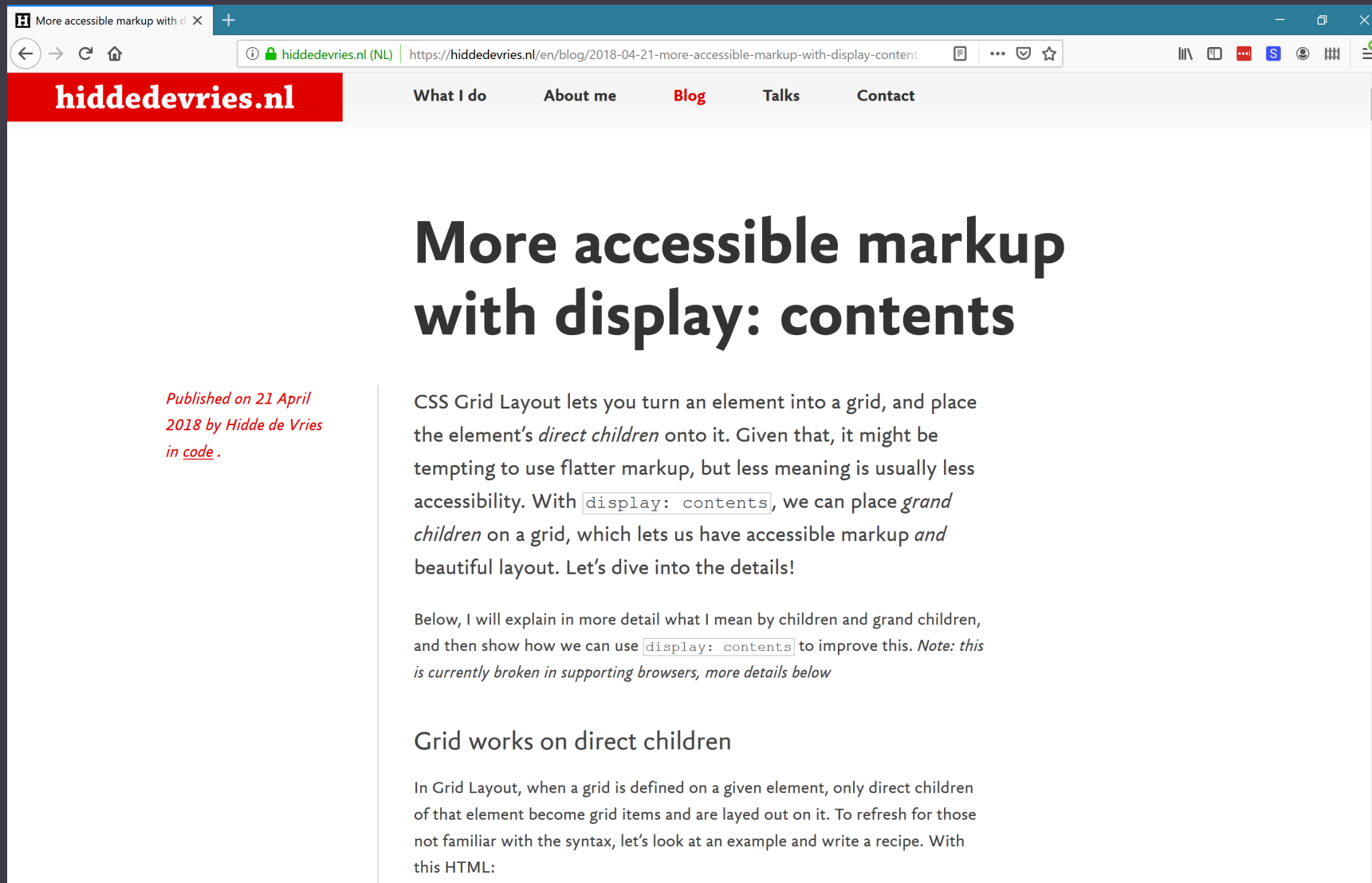
Direct Child	Direct Child	List Item
List Item	List Item	Direct Child

```
/* CSS */
.grid {
  display: grid;
  grid-template-columns: repeat(3, 1fr);
}

.grid > * {
  background-color: rgba(255,255,255,.5);
}

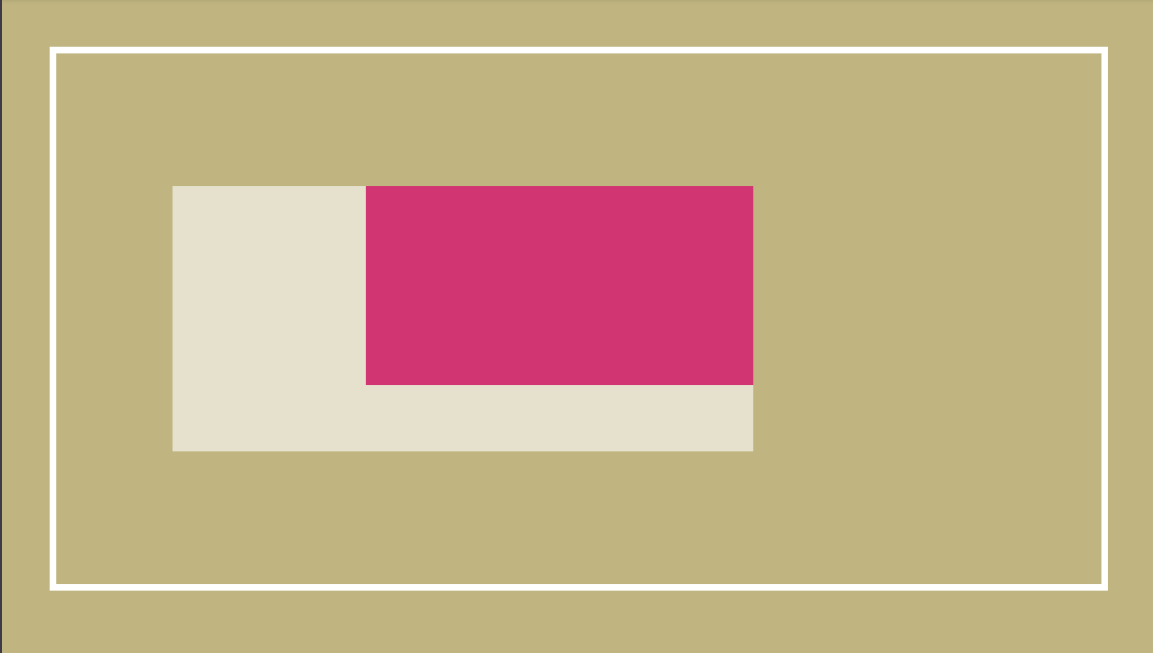
ul > * {
  background-color: rgb(209,54,114);
}

ul {
  display: contents;
}
```

Subgrid

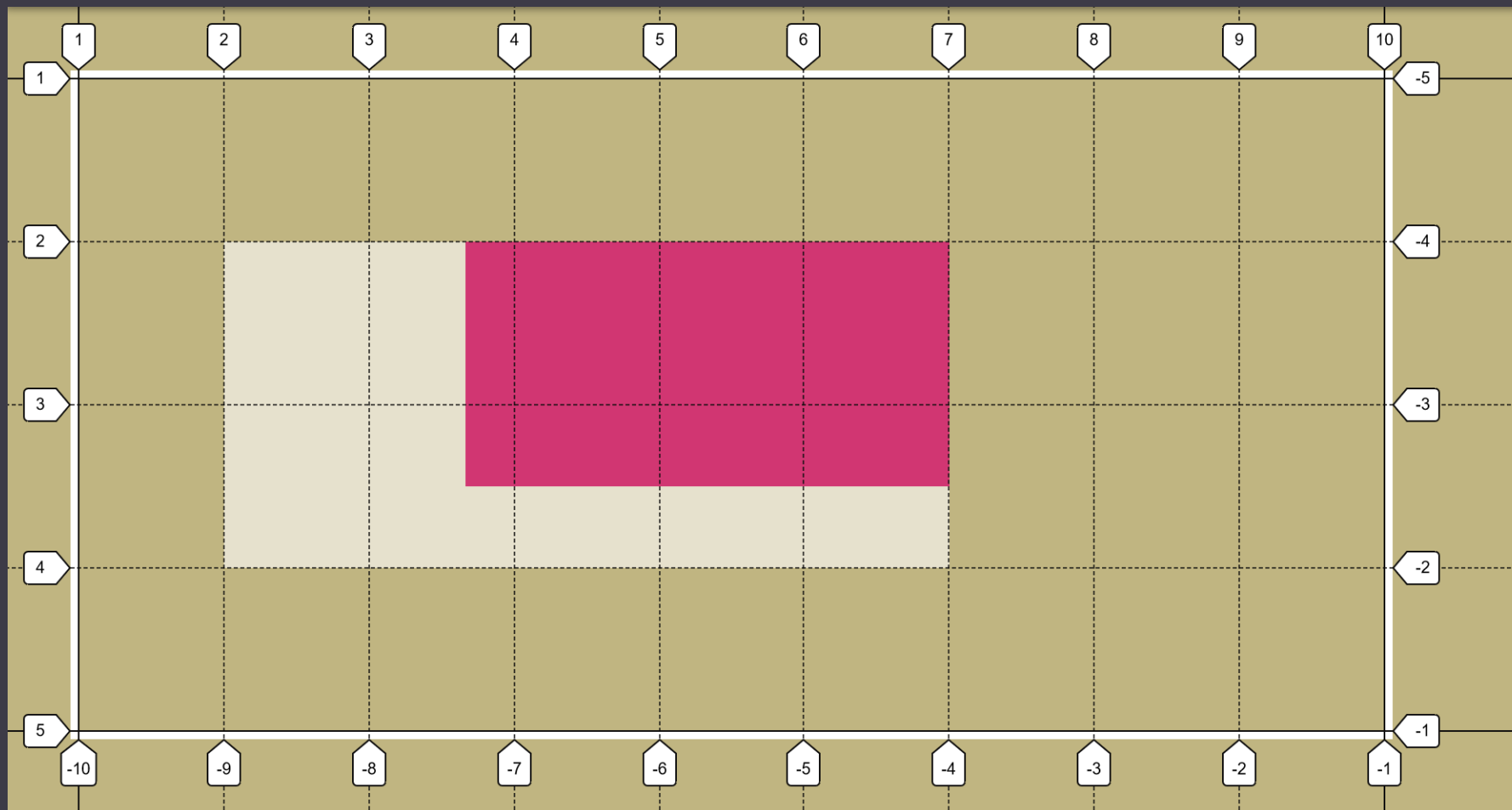
Create a grid on a grid item which uses the grid tracks defined on the parent – for rows, columns or both.

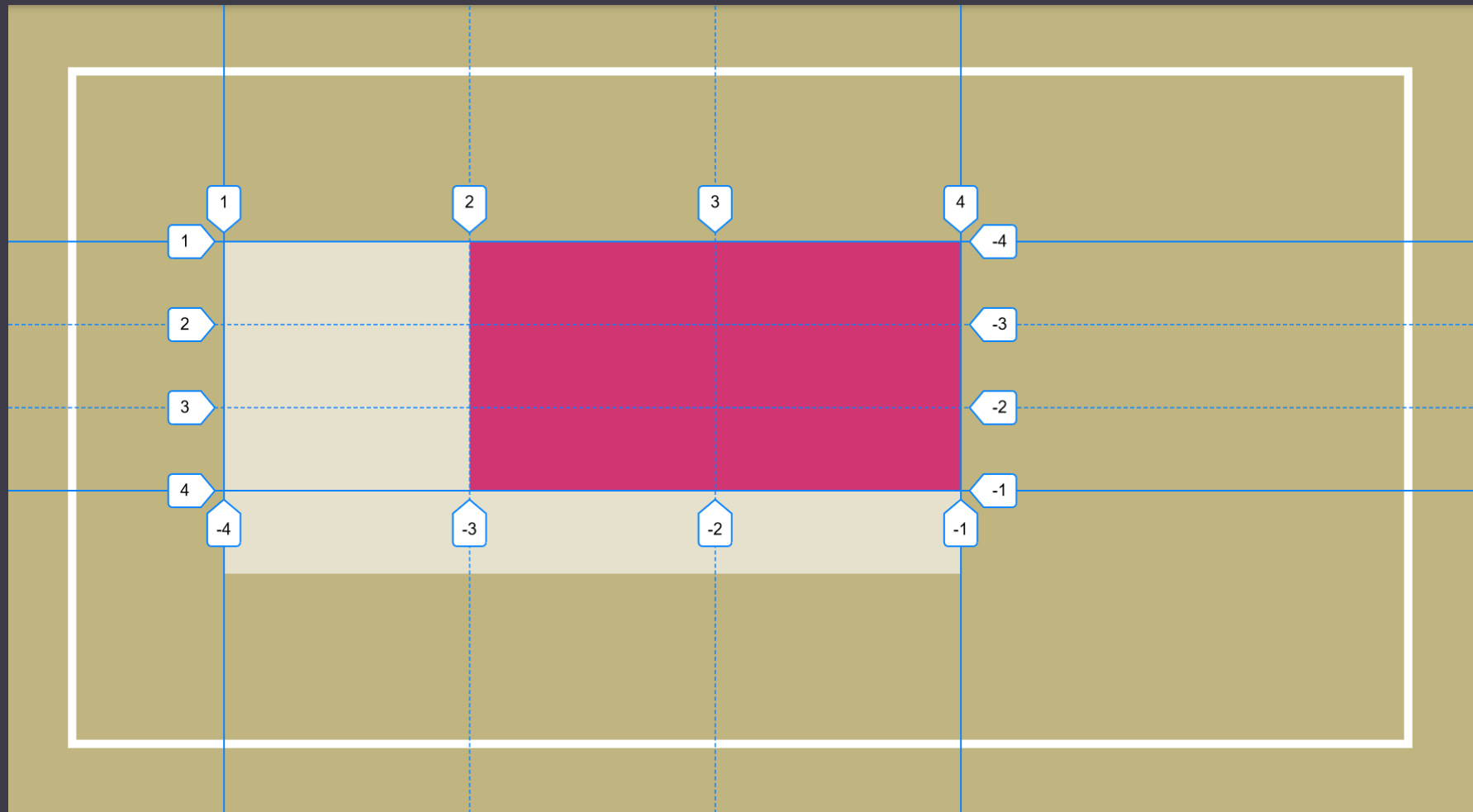


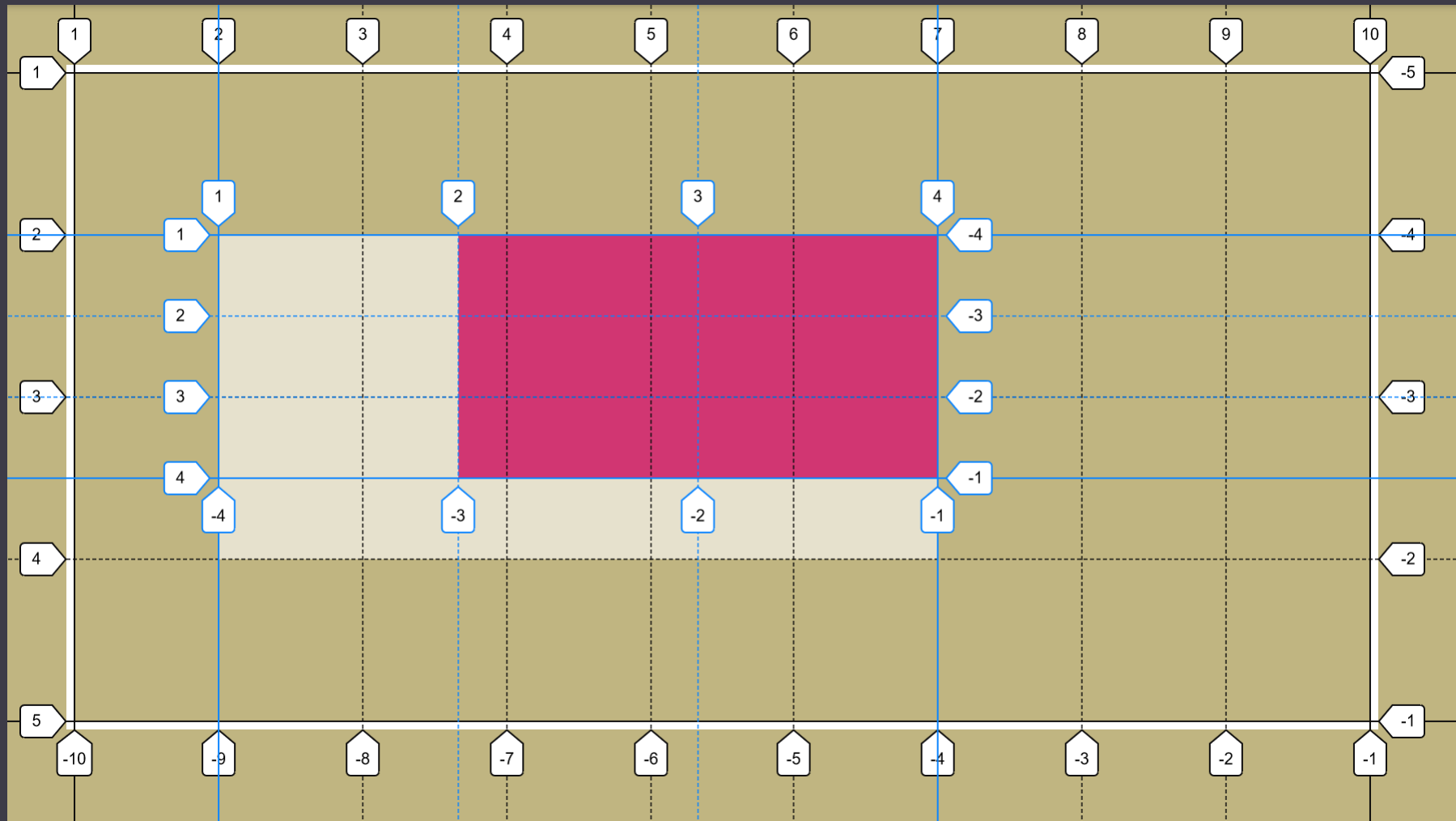
```
.grid {  
  display: grid;  
  grid-template-columns: repeat(9, 1fr);  
  grid-template-rows: repeat(4, minmax(100px,  
auto));  
}
```

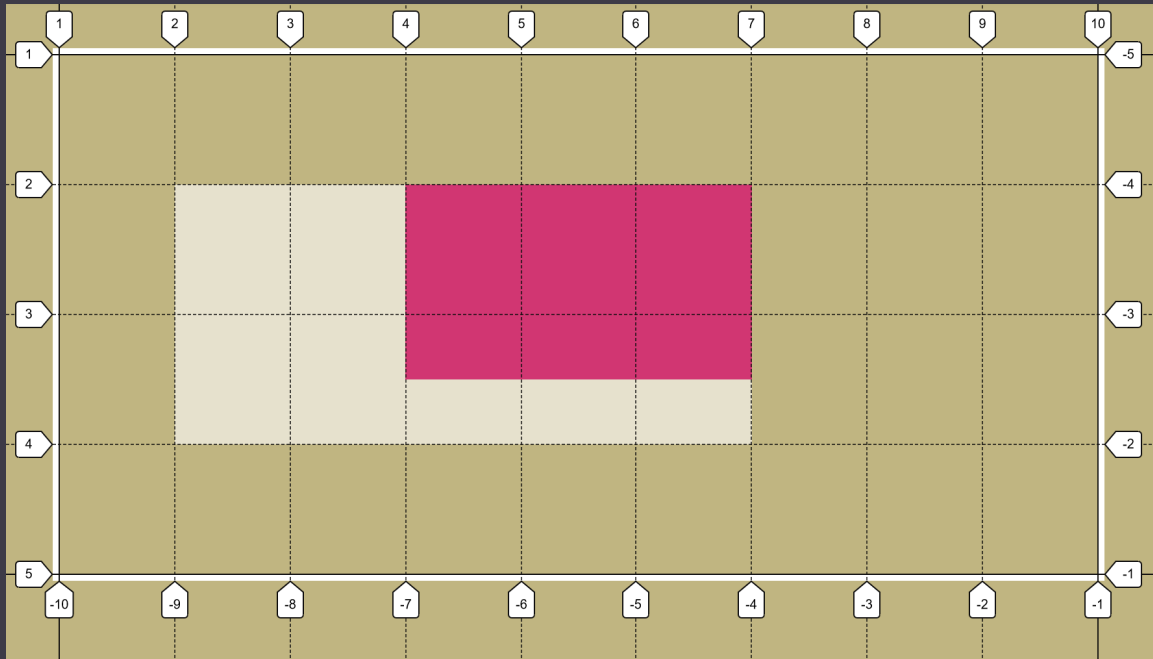
```
.item {  
  grid-column: 2 / 7;  
  grid-row: 2 / 4;  
  display: grid;  
  grid-template-columns: repeat(3, 1fr);  
  grid-template-rows: repeat(3, 50px);  
}
```

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





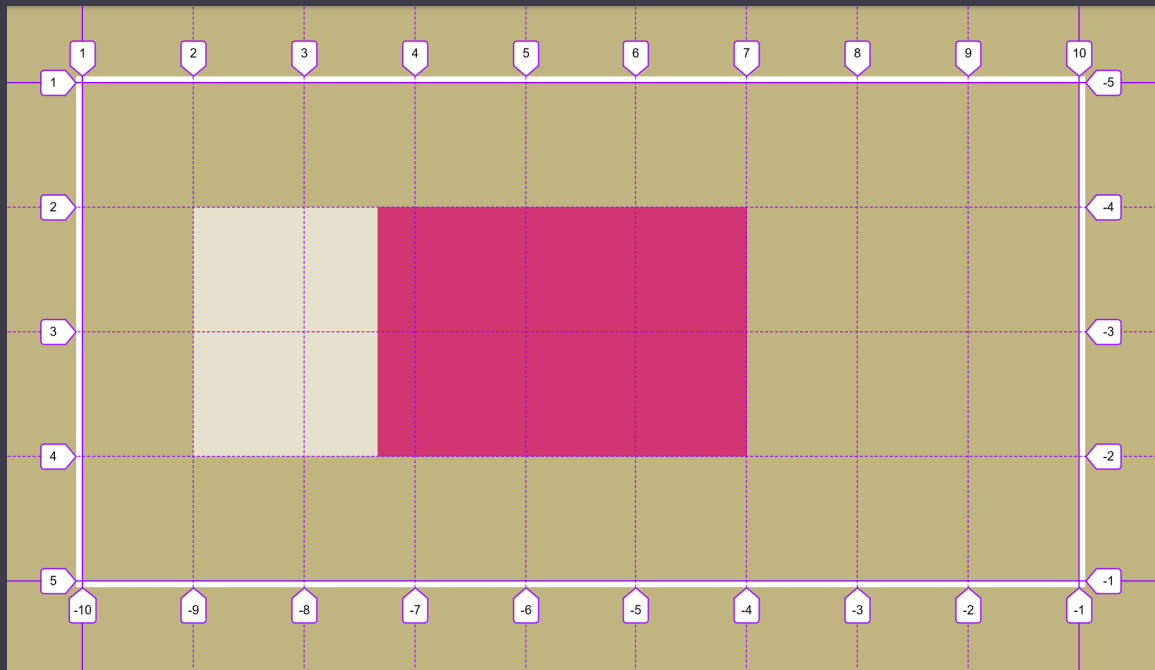




```
.grid {  
  display: grid;  
  grid-template-columns: repeat(9, 1fr);  
  grid-template-rows: repeat(4, minmax(100px,  
auto));  
}
```

```
.item {  
  grid-column: 2 / 7;  
  grid-row: 2 / 4;  
  display: grid;  
  grid-template-columns: subgrid;  
  grid-template-rows: repeat(3, 50px);  
}
```

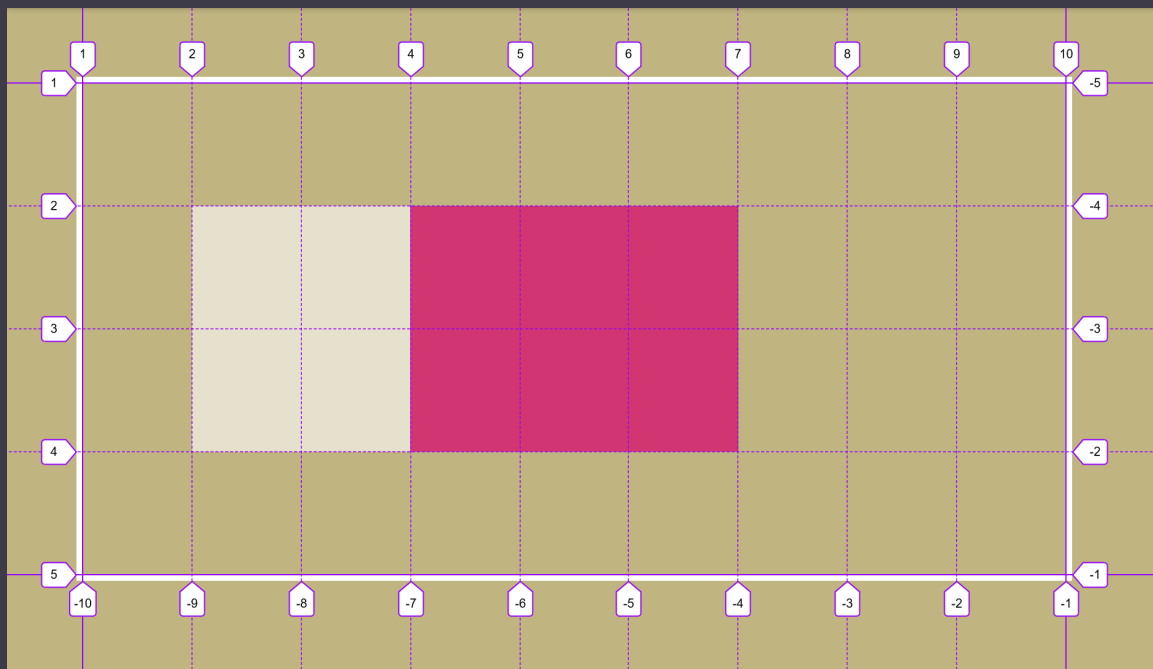
```
.subitem {  
  grid-column: 3 / 6;  
  grid-row: 1 / 4;  
}
```



```
.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;  
}
```

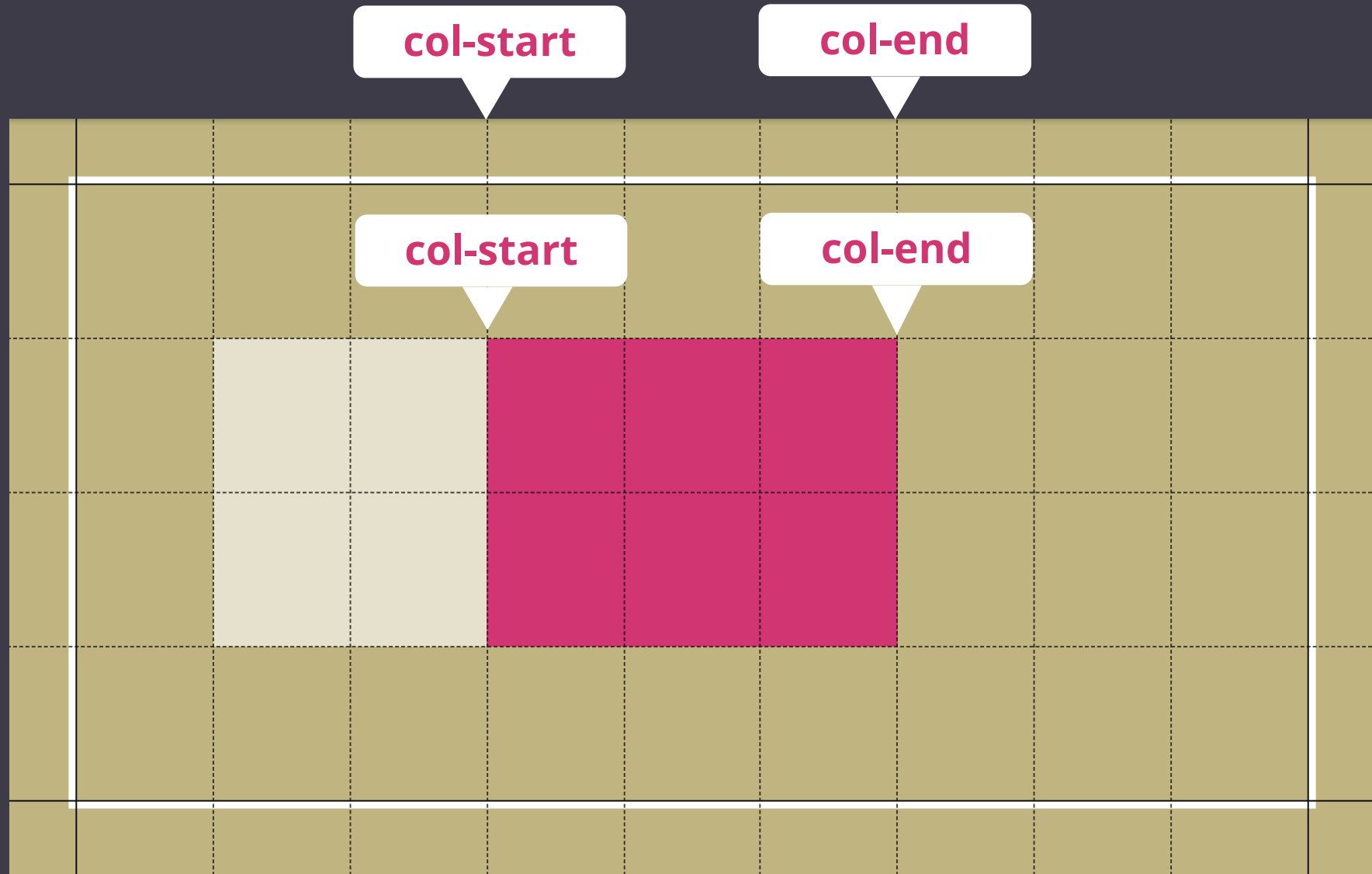
```
.subitem {  
  grid-column: 3 / 6;  
  grid-row: 1 / 3;  
}
```

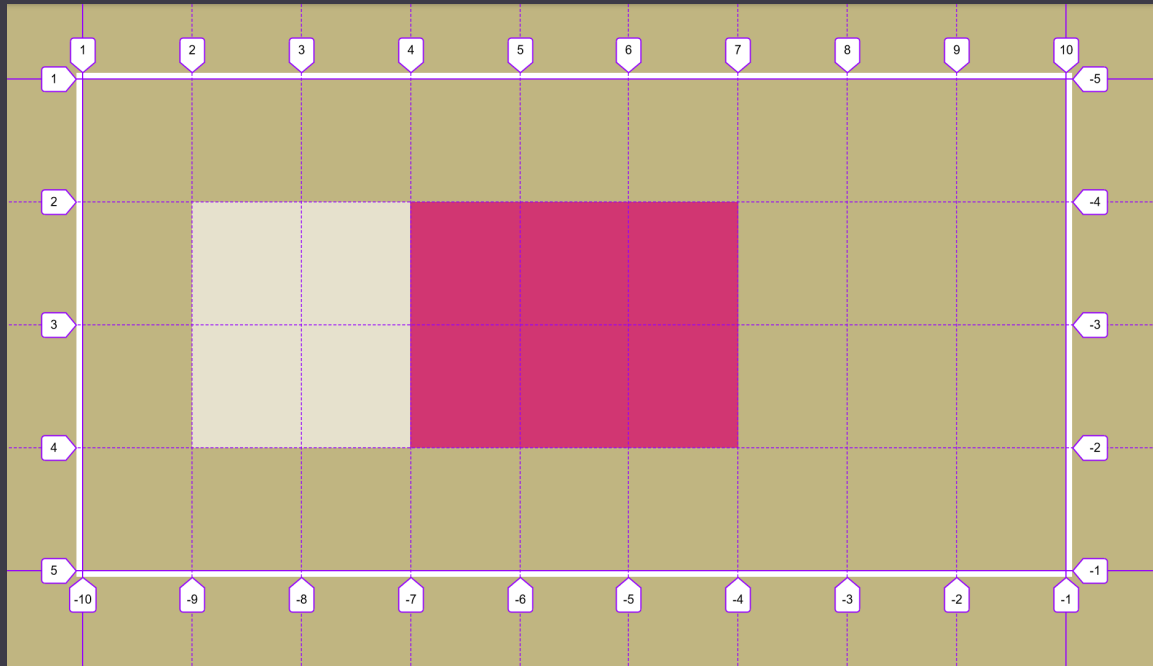
Line **numbers** start from 1 inside the subgrid.

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.





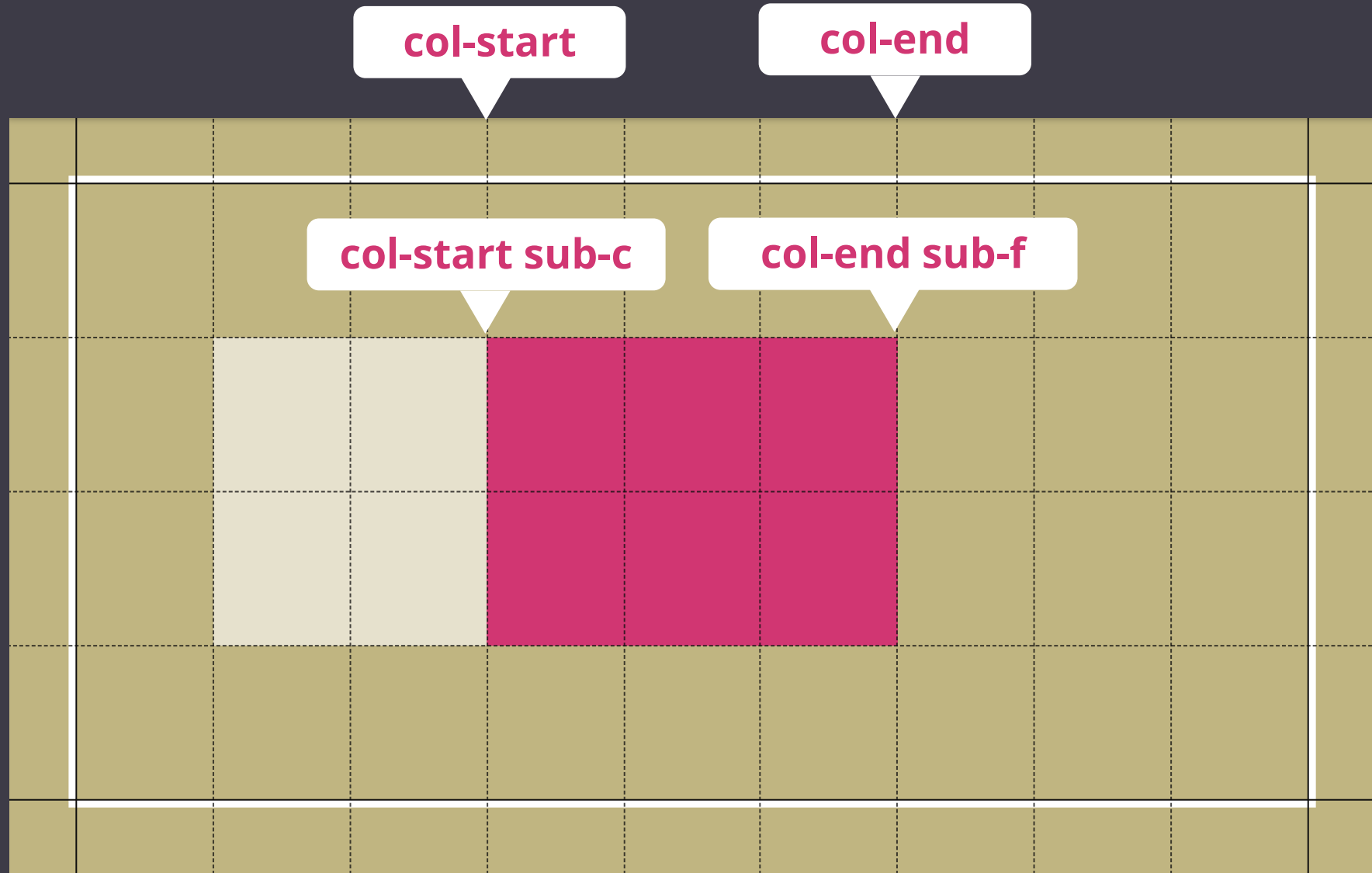
```
.grid {
  display: grid;
  grid-template-columns:
    1fr 1fr 1fr [col-start] 1fr 1fr 1fr [col-
end] 1fr 1fr 1fr;
  grid-template-rows: repeat(4, minmax(100px,
auto));
}
```

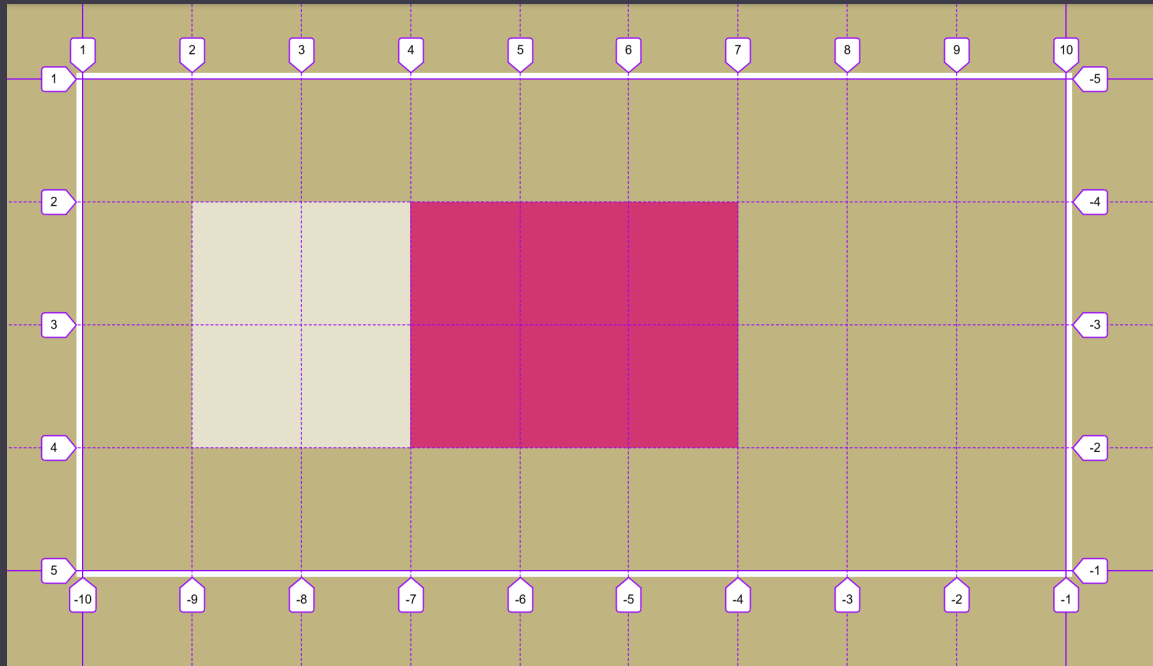
```
.item {
  grid-column: 2 / 7;
  grid-row: 2 / 4;
  display: grid;
  grid-template-columns: subgrid;
  grid-template-rows: subgrid;
}
```

```
.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.



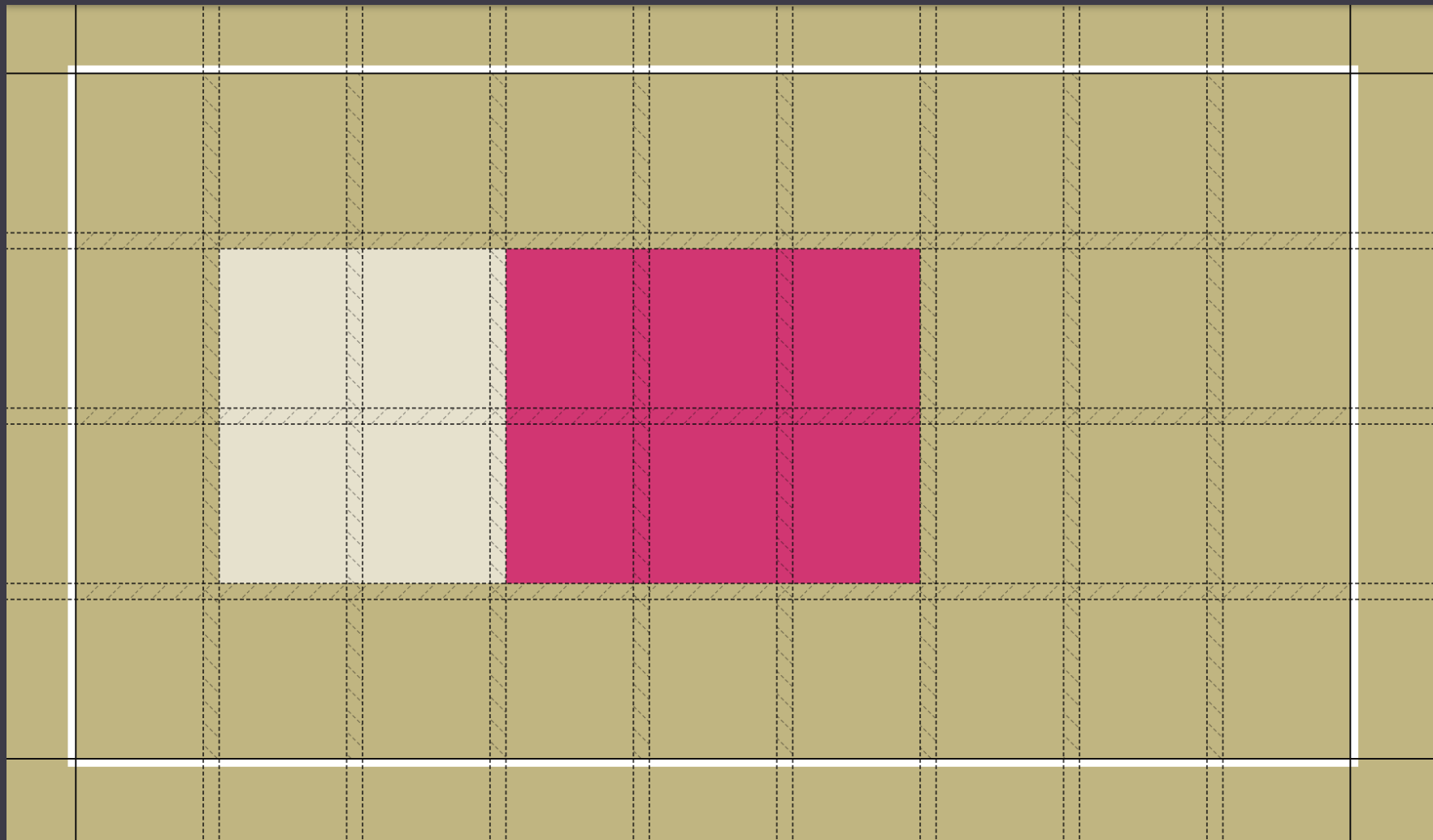


```
.grid {
  display: grid;
  grid-template-columns:
    1fr 1fr 1fr [col-start] 1fr 1fr 1fr [col-
end] 1fr 1fr 1fr;
  grid-template-rows: repeat(4, minmax(100px,
auto));
}
```

```
.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: sub-c / sub-f;
  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.



de Havilland
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Short
Stirling

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

Now the bad news

There are currently no browser implementations of subgrid.

CSS Subgrid - WD

Usage % of

all users

 ?

Global0%

U.K.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.

Current aligned

Usage relative

Date relative

Apply filters

Show all

?

IE	Edge*	Firefox	Chrome	Safari	iOS Safari*	Opera Mini*	Chrome for Android	UC Browser for Android	Samsung Internet
			71						
	17	65	72		11.4				4
11	18	66	73	12	12.1	all	71	11.8	8.2
		67	74	12.1	12.2				
		68	75	TP					
			76						

Notes

Known issues (0)

Resources (6)

Feedback

Firefox status: in-development

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

618969

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

bugs

chromium

New Issue

Open issues

Search chromium issues...

Starred by 13 users

Status: Available

Owner: ----

Cc: iferman...@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)

Sign in

to add a comment

Slides & resources <https://noti.st/rachelandrew>

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



1240834 - [css-grid] Implement X

https://bugzilla.mozilla.org/show_bug.cgi?id=1240834

Bugzilla Search Bugs Browse Advanced Search New Bug My Dashboard

Bug List: (5 of 12) First Prev Next Last Last search results

Bug 1240834 [css-grid] Implement layout support for "subgrid" Edit Bug

NEW Assigned to mats (NeedInfo from mats) Copy Summary Stop Following Get help with this page

Status

Product: Core	Reported: 3 years ago
Component: Layout	Modified: 6 minutes ago
Importance: P3 normal	
Status: NEW	

People (Reporter: dholbert, Assigned: mats, NeedInfo)

Tracking (Depends on: 5 bugs, Blocks: 3 bugs, {dev-doc-needed, DevAdvocacy})

Firefox Tracking Flags (Not tracked)

Details (Whiteboard: [DevRel:P1][layout:p2], URL)

Attach File Add Comment View

Daniel Holbert [:dholbert] (at a conference Tues-Weds Apr 2-3) (Reporter)
Description • 3 years ago

Bug-983175 added style-system support for "subgrid". Filing this bug on actually honoring "subgrid" styling in layout.

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

Daniel Holbert [:dholbert] (at a conference Tues-Weds Apr 2-3) (Reporter)
Updated • 3 years ago

Blocks: 616605

Daniel Holbert [:dholbert] (at a conference Tues-Weds Apr 2-3) (Reporter)
Comment 1 • 3 years ago

Quoting Jen Simmons [:jensimmons] from bug-983175-comment-#17:

```
> As authors are digging into how to use Grid, as industry leaders are writing
> their books about Grid, it seems like punting Subgrids is a bad idea. Even
> if including it means delaying Grid for months. There's not consensus yet,
> but a brewing question... Here's Eric Meyer's investigation, with usecases:
> http://meyerweb.com/eric/thoughts/2016/01/15/subgrids-considered-essential/
```

Jean-Yves Perrier [:teoli]
Updated • 3 years ago

https://bugzilla.mozilla.org/show_bug.cgi?id=1240834



Implement `subgrid` - Welcome

← → ↺ 🏠

https://wpdev.uservoice.com/forums/257854-microsoft-edge-developer/suggestions/20447239-implement-subgrid

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How can we improve the Microsoft Edge developer experience?

← Microsoft Edge Developer

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Implement `subgrid`

The new `subgrid` (cf. https://developer.mozilla.org/en-US/docs/Web/CSS/CSS_Grid_Layout/Basic_Concepts_of_Grid_Layout#Subgrid) is pretty handy.

See a common use case here : <https://rachelandrew.co.uk/archives/2017/07/20/why-display-contents-is-not-css-grid-layout-subgrid/>

Pa shared this idea · Aug 8, 2017 · [Flag idea as inappropriate...](#)

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Heechan Jeong commented · October 18, 2017 1:51 AM · [Flag as inappropriate](#)

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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.

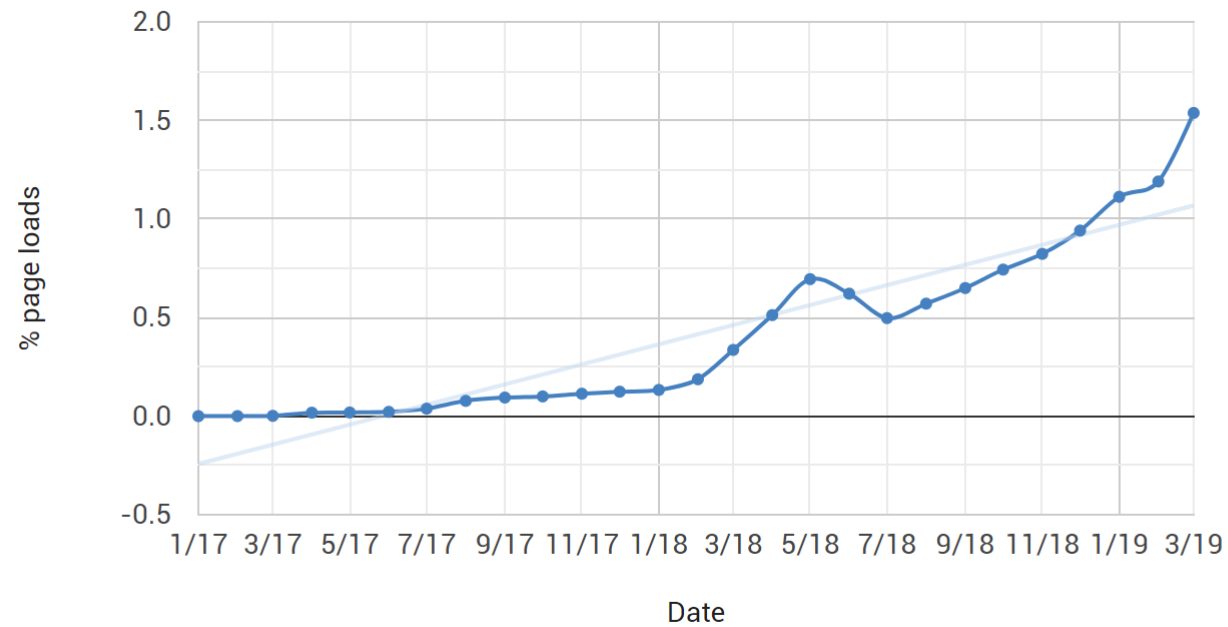
Use of CSS properties over time.

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

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☐	1,346 Open ✓ 1,835 Closed	Author	Labels	Projects	Milestones	Assignee	Sort
☐	[css-text-4] white-space:break-spaces is in level 3 but not level 4 css-text-3 css-text-4 #3794 opened 10 hours ago by litherum						3
☐	[css-color-4] Paint order of non-positioned stacking context css-color-4 #3793 opened 12 hours ago by SimonSapin						1
☐	[css-transitions] What defines that unconnected elements don't transition? css-transitions-1 #3790 opened a day ago by birtles						3
☐	[css-font-loading-3] Relationship between FontFace and CSSFontFaceRule css-font-loading-3 #3787 opened 2 days ago by litherum						1
☐	[css-text-3] "hang" definition refers to punctuation, but also applies to white space css-text-3 #3784 opened 2 days ago by heycam						
☐	[css-animations] Animations should be allowed on linear/radial gradients css-images-4 #3783 opened 2 days ago by SetTrend						3
☐	[css-page-floats] should intersect with [css-page] #3780 opened 3 days ago by v-python						2
☐	[css-overflow] Overflow propagation when the element propagated from is display: none Agenda+ css-overflow-3 #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