Practical UI Physics

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Meta Fuzzy
Masonry
Cascading grid layout library

What is Masonry?
Masonry is a JavaScript grid layout library. It works by placing elements in optimal position based on available vertical space, sort of like a mason fitting stones in a wall. You've probably seen it in use all over the Internet.
$grid.isotope({ filter: '*' })

Edit this demo on CodePen
Physics
Practical UI Physics
Why Physics?
Mouse

Precision – pen

Might not need physics
Touch
General – finger
Physics feels right
Practical

You understand it

User interface

For the benefit of your users
Practical UI physics

Change position with drag
Keep moving after flick
Flick movement slows
Rubber band at ends
Physics basics
function update() {
    velocity *= friction
    position += velocity
}

function applyForce(force) {
    velocity += force
}
Basics demo
Drag demo
Forces
function update() {
    velocity *= friction
    position += velocity
}

double applyForce(double force) {
    velocity += force
}
var wind  // particle force

function update() {
    applyForce(wind)
    velocity *= friction
    position += velocity
}

function applyForce(force) {
    velocity += force
}
Wind force demo
\[\text{distance} = \text{target} - \text{position}\]

\[\text{force} = \text{distance} \times \text{strength}\]
var attractionStrength = 0.02;

function update() {
    // attract particle to target
    var distance = target - positionX;
    var attraction = distance * attractionStrength;
    applyForce( attraction );

    // integrate physics
    velocity *= friction;
    position += velocity;
}
Attraction demo
Conditional demo
Flickity demo
Bonus:
Rubber band bounds
Rubber band bounds demo
// calculate resting position
rest = position +
    velocity / ( 1 - friction )
function update() {
    velocity *= friction
    position += velocity
}

function applyForce( force ) {
    velocity += force
}
More resources

Nature of Code (Ch. 1 & 2)
natureofcode.com

Coding Math
youtube.com/user/codingmath
These demos

codepen.io/desandro/tag/practical-ui-physics
github.com/desandro/practical-ui-physics
Thank you! – @desandro
Try Flickity

wrapAround
At the end of cells, wrap-around to the other end for infinite scrolling.

```javascript
wrapAround: true
```

freeScroll
Enables content to be freely scrolled and flicked without aligning cells to an end position.

```javascript
freeScroll: true
```