The neoschool Class (v1.2.0)

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The neoschool class provides K–12 educators with a comprehensive toolkit for creating pedagogical documents—exams, lecture notes, worksheets, answer keys, and more. It ships with sixty predefined color themes, extensive layout and typography options, specialized environments, dedicated commands, and multiple header styles tailored for different document types. Dozens of commonly used LaTeX packages are loaded automatically, keeping your preamble clean and minimizing compatibility issues. Full localization support is available for English, French, and German.

Contents

① Loaded Packages

The following packages are automatically loaded by the `neoschool` class.

`adforn`	`iftex`	`pifont`	`tikzsymbols`
`adjustbox`	`kvoptions`	`qrcode`	`todonotes`
`algpseudocode`	`lastpage`	`scrlayer-scrpage`	`ulem`
`amsmath`	`listings`	`setspace`	`wrapfig`
`babel`	`marginnote`	`silence`	`xcolor`
`bookmark`	`microtype`	`siunitx`	`xhfill`
`calc`	`multicol`	`tabularray`	`xkeyval`
`changepage`	`nccmath`	`tasks`	`xsim`
`colortbl`	`needspace`	`tcolorbox`	`xstring`
`environ`	`pdftexcmds`	`textcase`	
`fontawesome5`	`pgffor`	`tikz`	
`forest`	`pgfplots`	`tikzpagenodes`	

When compiling with `pdflatex`, the class also loads `fontenc` (with `T1`), `inputenc` (with `utf8`), `newpxtext`, and `newpxmath`. When using `lualatex`, it provides access to `fontspec`, `luacas`, `lua-ul`, and `luacolor`, and sets up `TeX Gyre Pagella` and `TeX Gyre Heros` alongside `newpxmath`.

1.1 Optional Packages

- **faketext**: loads `blindtext` and `lipsum` for placeholder text.
- **mathastext**: loads `mathastext` to use the text font in math mode.
- **math**: loads `annotate-equations`, `bm`, `cancel`, `esvect`, `mathrsfs`, `ncccomma`, `numprint`, `tdsfrmath` (with `suite` and `taupe` options), `tkz-euclide`, `witharrows`, and `xlop`.
- **notes/leftnotes/rightnotes**: activates margin notes (left, right, or alternating).
- **apmep**: loads a bundle of packages for compiling French national exam papers (APMEP), including `esvect`, `fourier-orns`, `numprint`, `pstricks` and its ecosystem, `tabularx`, `textcomp`, `tkz-tab`, and `variations`.
- **mathics**: loads `asymptote` and `latexalpha2` for computer algebra via Mathics.

② Configuration Options

2.1 Language

- **english**, **french**, **german**: activates localization, including environment labels, typography rules, and math conventions.
- **nofrenchlist**: disables French-style lists (uses bullets instead of dashes).
- **frenchlistaspar**: treats list items as paragraphs in French mode.
- **frenchmath**: applies French math conventions (upright capitals and Greek letters).

2.2 Global Appearance

2.2.1 Predefined Themes

The **theme**=name option sets the document's color scheme. Available themes are organized by category.

- **Modern:** cambridge, fjord, granite, graphite, midnight (default), nocturne, nordic, oceanic, oxford, petrol, slate.
- **Blue:** academic, azure, book, klein, pacific, prussian, royalblue, scholar, skyblue.
- **Green:** classic, dartmouth, emerald, forest, hunter, jungle, olive, reef, science, teal.
- **Red:** burgundy, cherry, crimson, deeporange, firebrick, pepper, scarlet.
- **Brown:** coffee, goldenrod, monastery, rosewood, sahara, sienna, terra, titian, tuscany, vandyke, vintage.
- **Purple:** amethyst, dusk, indigo, iris, lavender, marrs, modern, modern2, mulberry, violetrose.
- **Dark:** dracula, night, mocha, nord.

```
\documentclass[theme=emerald]{neoschool}
```

2.2.2 Accent Styles

The **accent**=style option controls how theme colors are applied throughout the document.

- **strong**: vivid, high-contrast colors everywhere.
- **emphasized**: colored headings, neutral body text.
- **gradient**: colors shift across heading levels.
- **soft**: muted colors with black text.
- **flat**: primary color dominates all elements.
- **light** (default): balanced, lighter tones.
- **structured**: structural colors only; code in black.
- **minimal**: sparse color usage; content-focused.
- **mono**: monochrome based on the primary color.
- **technical**: technical style; white background, black text.
- **print**: grayscale for printing.
- **accessible**: cream background with high-contrast colors for accessibility.

2.2.3 Color Profiles

The **colorprofile**=profile option determines how colors are assigned to environment types.

- **mathbook** (default): primary for foundations (definitions), secondary for theory (theorems), tertiary for exercises and examples.
- **exam**: primary for exercises, secondary for foundations and theory.
- **core**: primary for foundations and theory, secondary for exercises.
- **school**: primary for exercises and examples, secondary for theory, tertiary for foundations.

2.2.4 Color Modes

- **unicolor**: uses a single color for all environments.
- **bicolor**: uses two complementary colors.

2.2.5 Custom Colors

- **globalcolor**=`color`: main text color (default: `black`).
- **titlecolor**=`color`: document title color.
- **titlehexcolor**=`RRGGBB`: document title color in hex.
- **headcolor**=`color`: `\section` heading color.
- **subcolor**=`color`: `\subsection` heading color.
- **subsubcolor**=`color`: `\subsubsection` heading color.
- **headfootcolor**=`color`: header and footer color.

2.2.6 Box Appearance

Frames and Backgrounds:

- **thmnoframe** / **thmframe**: toggle theorem box frames.
- **thmnoback** / **thmback**: toggle theorem box backgrounds.
- **codenoframe** / **codeframe**: toggle code box frames.
- **codenoback** / **codeback**: toggle code box backgrounds.
- **codenonum** / **codenum**: toggle line numbers in code.
- **adnoframe** / **adframe**: toggle admonition frames (default: no frame).
- **adnoback** / **adback**: toggle admonition backgrounds (default: no background).
- **exnoback** / **exback**: toggle exercise backgrounds.
- **noback** / **back**: toggle all backgrounds.
- **noframe** / **frame**: toggle all frames.
- **clean**: disables all frames and backgrounds.
- **styled**: enables all frames and backgrounds.

Background Opacity:

- **boxopacity**=`n`: global background opacity (0–100, default: 0).
- **thmboxopacity**=`n`: theorem background opacity.
- **exboxopacity**=`n`: exercise background opacity.
- **codeboxopacity**=`n`: code background opacity (default: 7).
- **adboxopacity**=`n`: admonition background opacity.
- **mathboxopacity**=`n`: math highlight opacity (default: 15).

Corner Radius:

- **boxarc**=`dim`: radius for `neobox` and `answerframe` (default: `0pt`).

- **thmboxarc**=`dim`: radius for theorems (default: `0pt`).
- **exboxarc**=`dim`: radius for exercises (default: `0pt`).
- **codeboxarc**=`dim`: radius for code boxes (default: `0pt`).
- **adboxarc**=`dim`: radius for admonitions (default: `0pt`).
- **sideboxarc**=`dim`: radius for `sidebyside` (default: `0pt`).
- **pseudoboxarc**=`dim`: radius for `pseudocode` (default: `0pt`).

Title Terminators:

- **thmterminator**=`text`: terminator after theorem titles (default: `.\!`).
- **thmseparator**=`text`: separator between name and custom title.
- **adterminator**=`text`: terminator for admonitions (default: `.\!`).
- **exterminator**=`text`: terminator for exercises (default: `.`).
- **boxtitle**=`text`: default title for generic boxes.

2.2.7 Other Display Options

- **scale**: harmonizes font sizes in `lualatex`/`xelatex`.
- **inlinecodebox**: renders inline code (`\texttt`) in a colored box.
- **inlineadmonition** (default): admonition title and content on the same line.
- **blockadmonition**: forces admonition content below the title.

2.3 Typography

2.3.1 Fonts

- **mainface**=`Font`: main serif font.
- **mainfaceoptions**=`options`: options for the main font.
- **mainfacescale**=`factor`: scale factor (default: 1.0).
- **sansface**=`Font`: sans-serif font.
- **sansfaceoptions**=`options`: options for the sans font.
- **sansfacescale**=`factor`: scale factor (default: 1.0).
- **monoface**=`Font`: monospace font (for code).
- **monofaceoptions**=`options`: options for the mono font.
- **monofacescale**=`factor`: scale factor (default: 1.0).
- **mathface**=`Font`: math font.
- **mathfaceoptions**=`options`: options for the math font.
- **mathfacescale**=`factor`: scale factor for math.
- **facefamily**=`Family`: complete font family.
- **facefamilyoptions**=`options`: options for the family.
- **sfbody**: use sans-serif for body text.
- **sfall**: use sans-serif throughout the document.

- **mathastext**: use the text font for math.

2.3.2 Heading Styles

Global Styles:

- **headstyle**=`style`: font family (default: `sffamily`).
- **headweight**=`weight`: font weight (default: `bfseries`).
- **headshape**=`shape`: font shape (default: `upshape`).

Document Title:

- **titlestyle**=`style`: inherits from `headstyle`.
- **titleweight**=`weight`: inherits from `headweight`.
- **titleshape**=`shape`: default `upshape`.
- **titlesize**=`size`: title font size (default: `hugeminus`).
- **titlealign**=`align`: alignment (default: `center`).
- **titledecor**=`decor`: decoration below title (default: `none`).

  Values: `none`, `ornament`, `rule`, `midrule`, `fullrule`.

Sections:

- **sectionnumstyle**=`style`: number appearance (default: `circle`).

  Values: `circle`, `box`, `dash`, `plain`.
- **sectiontextstyle**=`style`: text case (default: `sc`).

  Values: `sc`, `upper`, `lower`.
- **sectionstyle**=`style`: visual style (default: `normal`).

  Values: `normal`, `ornaments`, `underline`, `highlighted`, `shadedline`.
- **sectionalign**=`align`: alignment (default: `center`).

Headers and Footers:

- **headfootstyle**=`style`: inherits from `titlestyle`.

2.4 Page Layout

2.4.1 Margins and Spacing

- **margin**=`dim`: horizontal margin width (default: `1.5cm`).
- **indent**=`dim`: paragraph indentation (default: `1em`).
- **noindent**: removes paragraph indentation.
- **vspacing**=`factor`: vertical spacing factor (default: `1.0`). Range: 0.25 to 2.0.

2.4.2 Margin Notes

- **noteswidth**=`dim`: margin note width (activates `todonotes`).

- **notesposition**=`position`: note placement (`left`, `right`, or alternating by default).

2.4.3 Headers and Footers

- **fullheader**: enables full header/footer (requires `\neoheader`).
- **nofooter**: removes header and footer (`empty` style).
- **pageonlyfooter**: shows only centered page number.
- **headerules**=`style`: rule lines (default: `none`). Values: `none`, `headrule`, `footrule`, `headfootrule`.

2.4.4 Table of Contents

- **compacttoc**: reduces spacing in the table of contents.
- **monotoc**: renders TOC in `globalcolor`.
- **twocolumntoc**: displays TOC in two columns.

2.4.5 Output Modes

These options let you print multiple logical pages on a single physical sheet.

- **2a5toa4**: 2 identical A5 pages on one landscape A4 sheet.
- **2a4toa3**: 2 identical A4 pages on one landscape A3 sheet.
- **4a5toa3**: 4 identical A5 pages on one A3 sheet.
- **2toa3**: 2 different A4 pages on one landscape A3 sheet.
- **bookleta5**: A5 booklet (A5 pages on folded A4 sheets).
- **bookleta4**: A4 booklet (A4 pages on folded A3 sheets).

2.5 Miscellaneous Options

- **abstracttitle**=`Title`: title for the `abstract` environment (default: `DEFAULT`).
- **boldlistlabels**: renders list labels in bold.
- **totalpoints**=`n`: total points for grading (default: 20).

③ Document Styles

3.1 Title Layouts (`titlelayout`)

The **titlelayout**=`style` option controls the first page and title appearance.

3.1.1 Exam Styles

- **exam**: full layout with name/class/date fields and grading strip.
- **shortexam**: compact exam layout.
- **mockexam**: style for practice exams.

3.1.2 Quiz Styles

- **eval**: standard layout with corner info.

- **evalicons**: `eval` with customizable icons.
- **evalgrade**: `eval` with grading strip.
- **evaliconsgrade**: combines `evalicons` and `evalgrade`.
- **shorteval**: compact single-line layout.

3.1.3 Visual Styles

- **bubbles**: centered title over colored bubbles.
- **topbubbles**: bubbles at top, title below.
- **bottombubbles**: bubbles at bottom, title above.
- **geometric**: geometric pattern background.
- **banner**: title in a decorative banner.

3.1.4 Classic Styles

- **default**: standard centered title.
- **titlebox**: title in a colored banner at page top.
- **tighttitle**: compact title without box.
- **onlytitle**: displays only the centered title.
- **shorttitle**: compact centered single-line title.
- **shortlesson**: compact style for lesson handouts.

```
\documentclass[titlelayout=exam]{neoschool}
\neoheader{
  type = Unit Test 1,
  school = Springfield High,
  level = AP Calculus BC,
  duration = 90 min,
  calculator = exam
}
\title{Sequences and Series}
\date{October 21, 2025}
\subject{Mathematics}
\begin{document}
\maketitle
...
\end{document}
```

3.2 Header Configuration (`\neoheader`)

This command configures metadata for the `exam`, `eval`, `mockexam`, `shortlesson` styles, and the `fullheader` option.

```
\neoheader{
  type = {Pop Quiz},
  school = {Lincoln Middle School},
  academy = {District 7},
  level = {8th Grade},
  duration = {20 minutes},
  calculator = {false},       % true / false / exam
```

```
  leftcontent = {\faFlask},
  rightcontent = {\faCalculator},
  leftcontentfill = {true},
  rightcontentfill = {true}
}
```

④ Math Environments

Built on `tcolorbox`.

4.1 Theorem Styles

The **thmstyle**=`style` option sets the appearance of theorem-like environments. Values: `amslike` (default), `leftrule`, `elegant`, `shaded`, `slanted`, `sober`, `classic`, `classy`, `boxed`.

4.2 Available Environments

- **theorem** (ref: `thm`)
- **lemma** (ref: `lem`)
- **corollary** (ref: `cor`)
- **conjecture** (ref: `conj`)
- **proposition** (ref: `propo`)
- **property** (ref: `prop`)
- **definition** (ref: `def`)
- **method** (ref: `meth`)
- **activity** (ref: `act`)
- **application** (ref: `appl`)
- **remark**, **remarks** (unnumbered)
- **example**, **examples** (ref: `ex`)
- **proof**

4.3 Environment Options

- **title**=`text`: custom title.
- **label**=`name`: label for `\ref`.
- **colback**=`color`: background color.
- **colframe**=`color`: frame color.
- **coltitle**=`color`: title color.
- **fonttitle**=`commands`: title formatting.

4.4 Numbering Options

- **sectionthmcounter**: counters reset per section.
- **sharedthmcounter**: single counter shared across all environments.

- **thmgroupcounter**: shared counter for theorem, lemma, corollary, proposition, property.
- **sharedexcounter**: shares counter between exercises and theorems.

4.5 Environment Examples

```
\begin{definition}[
  title=Prime Number,
  label=prime
]
A natural number is called prime
if it has exactly two distinct
divisors: 1 and itself.
\end{definition}

See Definition~\ref{def:prime}.
```

Definition 1 (Prime Number). A natural number is called prime if it has exactly two distinct divisors: 1 and itself.

See Definition 1.

```
\begin{theorem}[title=Pythagorean Theorem]
In a right triangle, the square of
the hypotenuse equals the sum of
the squares of the other two sides:
\[ c^2 = a^2 + b^2 \]
\end{theorem}
```

Theorem 1 (Pythagorean Theorem). *In a right triangle, the square of the hypotenuse equals the sum of the squares of the other two sides:*

$$c^2 = a^2 + b^2$$

```
\begin{property}
Every differentiable function
is continuous.
\end{property}

\begin{proof}
This follows directly from
the definition of the derivative.
\end{proof}
```

Property 1. *Every differentiable function is continuous.*

Proof. This follows directly from the definition of the derivative. ■

```
\begin{example}
Let $f(x) = x^2$.
Then $f'(x) = 2x$.
\end{example}

\begin{remark}
The converse is false:
$|x|$ is continuous but not
differentiable at $0$.
\end{remark}
```

Example 1. Let $f(x) = x^2$. Then $f'(x) = 2x$.

Remark 1. The converse is false: $|x|$ is continuous but not differentiable at 0.

5 Exercises

Built on the xsim package.

5.1 The `exercise` and `solution` Environments

5.1.1 Exercise Options

- **points**=n: point value.
- **bonus-points**=n: bonus points.
- **level**=n: difficulty level (1–5, shown as stars).
- **subtitle**=text: subtitle.
- **icon**=fa-name: FontAwesome icon (requires `exerciseicons`).
- **topic**=topic: topic for sorting/filtering.
- **grade**=level: grade level.
- **subject**=subject: subject area.
- **ID**=id: identifier for `\exercisenumber{id}`.
- **template**=name: display template.

5.1.2 Exercise Styles (`exstyle`)

The **exstyle**=style option sets the exercise appearance. Values: `inline` (default with `amslike`), `boxed`, `box`, `elegant-box`, `shaded-box`, `slanted-box`, `sober-box`, `classic-box`, `classy-box`, `rect-box`, `num-box`, `ex-num-box`, `box-hrule`, `smart-box`, `section`, `terminal`, `hrule`, `rule-ams`.

5.1.3 Global Options

- **exerciseicons**: enables icon display.
- **answers**: shows solutions after each exercise.
- **answersonly**: shows only solutions.
- **shuffle**: randomizes multiple-choice answers.
- **blocksol**: uses the `sol-block` template for solutions.

5.1.4 Exercise with Solution Example

```
\begin{exercise}[
  points=4,
  level=2,
  subtitle={Derivative Computation}
]
Find the derivative of
$f(x) = x^3 - 2x + 1$.
\end{exercise}

\begin{solution}
Using the power rule:
$f'(x) = 3x^2 - 2$.
\end{solution}
```

Exercise 1 [★★] ***Derivative Computation*** **(4 points)**
Find the derivative of $f(x) = x^3 - 2x + 1$.

Solution of exercise 1. Using the power rule: $f'(x) = 3x^2 - 2$.

5.1.5 Multiple Choice

- **choices**(n): single-answer MCQ in *n* columns. Use `\choice` for an option; `\choice[\correct]` for the correct answer.

- **checkboxes**(n): multiple-answer MCQ. Use `\checkbox` for an option; `\checkbox[\correct*]` for a correct answer.

```
\begin{exercise}[points=1]
 What is the derivative of $f(x)=x^2$?
\begin{choices}(2)
  \choice[\correct] $x\mapsto 2x$
  \choice $x\mapsto x$
  \choice $x\mapsto x^2$
  \choice $x\mapsto 2$
 \end{choices}
\end{exercise}
```

Exercise 2 **(1 point)** What is the derivative of $f(x) = x^2$?

- ○ $x \mapsto 2x$
- ○ $x \mapsto x$
- ○ $x \mapsto x^2$
- ○ $x \mapsto 2$

```
\begin{exercise}[points=2]
 Check all true statements.
\begin{checkboxes}(1)
  \checkbox[\correct*] $\pi > 3$
  \checkbox $\sqrt{2}$ is rational
  \checkbox[\correct*] $0! = 1$
  \checkbox $\ln(1) = 1$
 \end{checkboxes}
\end{exercise}
```

Exercise 3 **(2 points)** Check all true statements.

- ☐ $\pi > 3$
- ☐ $\sqrt{2}$ is rational
- ☐ $0! = 1$
- ☐ $\ln(1) = 1$

6 Code Listings

Two syntax highlighting backends are available via class options:

- **listings** (default): syntax highlighting via `listings`.
- **minted**: syntax highlighting via `minted` (requires Python, Pygments, and `-shell-escape`).

6.1 The code Environment

```
\begin[options]{code}{language}[title][box-style]
... code ...
\end{code}
```

- `options`: `listings`/`minted` options.
- `language`: `python`, `latex`, `c++`, etc.
- `title`: optional title.
- `box-style`: box style.

```
\begin{code}{python}[Factorial Function]
def fact(n):
    if n <= 1:
        return 1
    return n * fact(n - 1)
\end{code}
```

Listing 4 — Factorial Function

```python
def fact(n):
    if n <= 1:
        return 1
    return n * fact(n - 1)
```

6.2 Code Box Styles (codestyle)

The **codestyle**=style option sets the code box appearance. Values: box-leftrule (default), box-minimal, box-subtle, box-fancy, box-elegant, box-sober, box-shaded, box-academic, box-diagonal, box-bevel, box-corner, box-rounded, box-downhill, box-toptitle, box-bottomtitle.

6.3 Code Options

- **codewidth**=factor: code block width (default: 1.0).
- **centeredcode**: centers code blocks.

6.4 Additional Commands

- \codeinline[lang]{code}: inline code with highlighting.
- \codeinput[opt]{lang}{file}[title][style]: imports code from a file.

```
The \codeinline[python]{range(n)} function
generates integers from $0$ to $n-1$.
```

The `range(n)` function generates integers from 0 to $n-1$.

6.5 The pseudocode Environment

Built on algpseudocode. Keywords are automatically localized.

Special commands:

- \Gets: assignment arrow ←.
- \To: "to" keyword for loops.

```
\begin{pseudocode}{Binary Search}
\Require Sorted array $T$, value $v$
\Ensure Index of $v$ or $-1$
\State $lo \Gets 0$, $hi \Gets |T| - 1$
\While{$lo \leq hi$}
    \State $mid \Gets (lo + hi) / 2$
    \If{$T[mid] = v$}
        \State \Return $mid$
    \ElsIf{$T[mid] < v$}
        \State $lo \Gets mid + 1$
    \Else
        \State $hi \Gets mid - 1$
    \EndIf
\EndWhile
\State \Return $-1$
\end{pseudocode}
```

entrée Sorted array T, value v
sortie Index of v or -1
  $lo \leftarrow 0, hi \leftarrow |T| - 1$
  tant que $lo \leq hi$ **faire**
    $mid \leftarrow (lo + hi)/2$
    si $T[mid] = v$ **alors**
      retourner mid
    sinon si $T[mid] < v$ **alors**
      $lo \leftarrow mid + 1$
    sinon
      $hi \leftarrow mid - 1$
    fin si
  fin tant que
  retourner -1

7 Admonitions

Colored callout boxes with icons for drawing attention.

- **note**: general remarks ().
- **info**: additional information ().

- **warning**: cautions ( ).
- **important**: key points ( ).
- **tip**: hints and tips ( ).
- **reminder**: things to remember ( ).
- **summary**: summaries ( ).
- **toolbox**: materials, prerequisites ( ).

Each environment accepts `[Title][Icon]`.

```
\begin{warning}[Caution][\faSkull]
  Never divide by zero!
\end{warning}
\begin{tip}
  Factor first whenever possible.
\end{tip}
```

Caution Never divide by zero!

Tip. Factor first whenever possible.

```
\begin{toolbox}[Materials Needed]
  Calculator, ruler, compass.
\end{toolbox}
\begin{reminder}
  $\sin^2(x) + \cos^2(x) = 1$
\end{reminder}
```

Materials Needed Calculator, ruler, compass.

Remember. $\sin^2(x) + \cos^2(x) = 1$

8 Content Layout

8.1 Absolute Positioning

`\positionobject{x}{y}{scale}{content}`: places content at coordinates (x, y) from the top-left corner.

8.2 Two-Column Layout

`\splitcontent[w1][gap]{col1}{col2}`: divides horizontal space.

```
\splitcontent[0.4][0.05]{%
  \textbf{Left Column (40\%)}

  First paragraph...
}{%
  \textbf{Right Column (55\%)}

  Second paragraph...
}
```

First paragraph with some text to demonstrate the layout. **Right Column (55%)**
Second paragraph with additional content.

8.3 The `sidebyside` Environment

Creates two `tcolorbox` panels side by side. Use `\tcblower` to separate them.

```
\begin{sidebyside}[
  title=Comparison,
  righthand width=.45\linewidth
]
  \textbf{Pros}
  \begin{itemize}
    \item Simple
    \item Fast
  \end{itemize}
\tcblower
  \textbf{Cons}
  \begin{itemize}
    \item Limited
  \end{itemize}
\end{sidebyside}
```

Comparison

Pros

- Simple
- Fast

Cons

- Limited

8.4 Text with Image

`\textwithimage[*]{w_img}{s_img}{text}{path}`: combines text and image. The starred version places the image on the left.

8.5 QR Codes

`\withqrcode[*][size]{url}{content}`: QR code alongside content. The starred version places the QR code on the right.

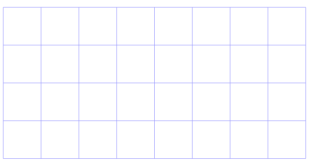
```
\withqrcode{https://example.com}{%
  Scan this QR code to
  visit the website.
}
```

Scan this QR code to visit the website.

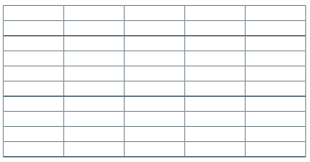
8.6 Grids and Paper Styles

- `\grid[color]{width}{height}`: 5mm × 5mm grid.
- `\customgrid[color][dx][dy]{width}{height}`: custom grid.
- `\frenchgrid[minor][major]{width}{height}`: Seyès-style ruled paper.
- `\gridfill` / `\gridfill*`: fills page with a grid.
- `\notebook`, `\nbminorgrid`, `\nbmajorgrid`: page background styles.

```
\grid[blue!40]{4cm}{2cm}
```



```
\frenchgrid{4cm}{2cm}
```



8.7 Simple Boxes

- `neobox`: box with frame.
- `neobox*`: box without visible frame.
- `\neocolorbox[color]{content}`: simple colored box.
- `\inlinebox[frame][bg][text]{content}`: customizable inline box.

```
\begin{neobox}[title=My Box]
  Box content with frame.
\end{neobox}

\begin{neobox*}
  Content without visible frame.
\end{neobox*}
```

My Box

Box content with frame.

Content without visible frame.

8.8 Logos and Special Symbols

- `\AILogo[options]`: AI logo (chip with neural network).
- `\NoAILogo[options]`: "No AI" logo (crossed-out chip).
- `\documentcolor{color}`: changes the document text color.

```
\AILogo \quad \NoAILogo
```

9 Grading and Correction

9.1 Grading Tools

- `\gradingstrip[total]`: grading banner with score and comments.
- `\mrk[*][comment]{pts}`: points in the margin.

```
\gradingstrip[20]
```

Mark	Comments
20	

9.2 Answer Spaces

- `\answerfield[width]{lines}`: shaded answer area.

- `\answerframe[width]{lines}`: framed answer area.
- `\vardots[length]`: fill-in-the-blank line.
- `\lines[char][spacing]{n}`: draws *n* horizontal lines.
- `\emptybox{width}{height}`: blank box for free response.

```
Answer: \answerfield[5cm]{1}
```

Answer:

```
Show your work:
\answerframe{3}
```

Show your work:

```
Name: \vardots[4cm]

Date: \vardots[3cm]
```

Name: .....
Date: .....

```
\lines{3}
```

.....
.....
.....

9.3 Markers and Symbols

- `\cmark`: ✓ (green).
- `\xmark`: ✗ (red).
- `\unchecked`: ☐.
- `\done`: ☑.
- `\wontfix`: ☒.

```
\begin{itemize}
  \unchecked Task to do
  \done Task completed
  \wontfix Task canceled
\end{itemize}
```

- ☐ Task to do
- ☑ Task completed
- ☒ Task canceled

9.4 Standards-Based Grading

`\competencies{Skill1\\Skill2...}`: rubric table with 4 proficiency levels.

```
\competencies{
  Compute derivatives \\
  Solve equations \\
  Write proofs
}
```

Competencies				
Compute derivatives				
Solve equations				
Write proofs				

10 Math Commands

10.1 Highlighting

- `\mhl[color]{expr}`: highlights the expression.
- `\mc[color]{expr}`: colors the expression.
- `\mathbox<bg>[border]{content}`: boxes math content.

```
$f(x) = \mhl[yellow!30]{x^2} + \mc[blue]{3x} - 1$
```

$f(x) = x^2 + 3x - 1$

```
The formula $\mathbox{E = mc^2}$ is famous.

With colors:
$\mathbox<yellow!20>[red]{a^2+b^2=c^2}$
```

The formula $\boxed{E = mc^2}$ is famous.
With colors: $\boxed{a^2 + b^2 = c^2}$

10.2 APMEP Support

Commands available with the `apmep` option:

- Vectors: `\vectt{AB}`.
- Coordinate systems: `\Oij`, `\Oijk`, `\Ouv`.
- Symbols: `\euro`, `\cg`, `\cd`, `\pg`, `\pp`, `\barre{x}`.

```
The vector $\vectt{AB}$ in the frame \Oij.

We have $x \pg 0$ and $y \pp 5$.

The mean is $\barre{x} = 12$.
```

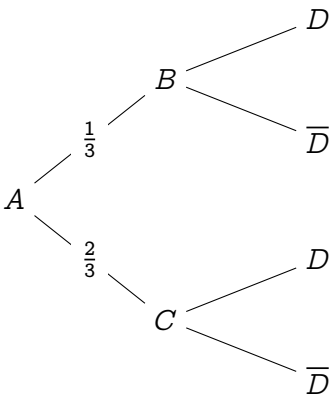
The vector $\overrightarrow{AB}$ in the frame $\left(O\ ;\ \vec{i},\ \vec{j}\right)$.
We have $x \geqslant 0$ and $y \leqslant 5$.
The mean is $\overline{x} = 12$.

11 Special Tools

11.1 Trees and Graphs

- **neotree**: tree environment (built on `forest`). The `w=val` option adds edge weights.
- `\neograph`: graph command (`lualatex` required).

```
\begin{neotree}[l=2cm, s sep=1cm]
  A [B, w=\frac{1}{3} [D] [\overline{D}]]
    [C, w=\frac{2}{3} [D] [\overline{D}]]
\end{neotree}
```



11.2 Math Grid (mathgrid)

Environment for aligning equation blocks in a grid.

- `\begin{mathgrid}{n}`: n-column grid.
- `\neoline`: new row.
- `\neocol[span]{content}`: column with `align*`.

```
\begin{mathgrid}{2}
  \neoline
  \neocol{
    A &= 2 + 3 \\
    A &= 5
  }
  \neocol{
    B &= 4 \times 2 \\
    B &= 8
  }
\end{mathgrid}
```

$$A = 2 + 3 \qquad B = 4 \times 2$$
$$A = 5 \qquad B = 8$$

12 Margin Notes

Enabled by `noteswidth=dim`.

- `\tdnote[options]{text}`: note in the margin.
- `\boxnote[label]{text}` + `\tdmark[label]`: anchored note.

```
% In the preamble or class options:
\documentclass[noteswidth=2.5cm]{neoschool}

% In the document:
This is important\tdnote{Remember this!}.

\boxnote[hyp]{Key assumption}
\begin{theorem}
  \tdmark[hyp] If $f$ is continuous on $[a,b]$...
\end{theorem}
```