PreTeXt Documents
For an article

<?xml version="1.0" encoding="UTF-8"?>
<pretext>
<article>
<title>Hello World!</title>
<p>This is a PreTeXt document.</p>
</article>
</pretext>

or a book

<?xml version="1.0" encoding="UTF-8"?>
<pretext>
<title>Hello World!</title>
</book>

Structure of a PreTeXt Document
PreTeXt documents are structured and may contain divisions such as <chapter> (for books), <section>, <subsection>, and <p> (paragraphs).

<section>
<title>Mandatory</title>
<p>First paragraph. </p>
<p>Second paragraph.</p>
</section>

Divisions may contain other divisions. Divisions require a <title>.

<section>
<title>Mandatory</title>
<introduction>
<p>Introductory text. (Optional.)</p>
</introduction>
</section>

Images, Figures, sidebyside

\[ f(x) = 3x^5 - 7x + 5 \]
\[ f'(x) = 15x^4 - 7 \]

Images can be included using the <image> tag with the @source attribute. The @width attribute can be used to control the size of the image. Images can be wrapped inside a <figure>. A <figure> must have a <caption>, and the figure will be numbered. The <sidebyside> tag provides flexible options for placing several images together or combining figures with subcaptions. PreTeXt provides support for authoring with graphics languages such as Asymptote, TikZ, PGF, PSTricks, and xy-pic in addition to using Sage code to describe a plot or image. In most cases output can be obtained as smooth-scalable SVG images, in addition to other formats like PDF or PNG. For accessibility, every <image> should either have a <description> child.

Example-Like Elements
The tags <example>, <problem>, and <question> have the same structure in PreTeXt.

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Axiom-Like Elements

The tags `<assumption>`, `<axiom>`, `<conjecture>`, `<heuristic>`, `<hypothesis>`, and `<principle>` have the same structure in PreTeX.

```xml
<axiom>
	<title>Optional</title>
	<creator>Peano</creator>
	<statement>
		<p>Here's the statement of the axiom.</p>
	</statement>
</axiom>
```

**Remark-Like Elements**

The tags `<convention>`, `<insight>`, `<note>`, `<observation>`, `<remark>`, and `<warning>` have the same structure in PreTeX.

```xml
<remark>
	<title>A little remark</title>
	<p>This is a remark.</p>
</remark>
```

**Project-Like Elements**

The tags `<activity>`, `<exploration>`, `<investigation>`, and `<project>` have the same structure in PreTeX.

```xml
<project>
	<title>A structured project</title>
	<introduction>
		<p>Here is the introduction.</p>
	</introduction>

	<task>
		<statement>
			<p>The first step to do.</p>
		</statement>
	</task>

	<task>
		<statement>
			<p>The second step to do.</p>
		</statement>
	</task>

	<conclusion>
		<p>A little wrap up.</p>
	</conclusion>
</project>
```

**Exercises**

An `<exercise>` in the middle of a division, intermixed between theorems and paragraphs and figures. In this case, it is labeled as a “Checkpoint.” You can put several `<exercise>`s as part of an `<exercises>` element within a division, which is the typical way for creating a collection of exercises together at the end of a division such as a chapter or section. An `<exercisegroup>` can group together a collection of exercises that have a set of common instructions.

A specialized division, `<reading-questions>`, can be used to house `<exercise>`s designed to test or guide a reader’s comprehension of the material in that division. It is possible to embed WebWork exercises into a PreTeX document.

An `<exercise>` has the following structure.

```xml
<exercise>
	<statement>
		<p>The &lt;statement&gt; is mandatory.</p>
	</statement>
	<optional-signal/>
	<hint>
		<p>Optional.</p>
	</hint>
	<answer>
		<p>Optional.</p>
	</answer>
	<solution>
		<p>Optional.</p>
	</solution>
</exercise>
```

An element we generically call a “signal” is an important component of an exercise if you want to add something that will be interactive in HTML and Runestone. Signals include `<choices>` for multiple choice questions, `<blocks>` for Parsons (mixed up blocks) problems, `<match>` for matching, `<areas>` for clickable area, `<response>` for short answer, and `<setup>` for fill-in-the-blank. A True/False question simply uses a `<correct>` attribute on `<statement>` as a signal. The signal element usually has further structure, see pretextbook.org for examples and source.

**Worksheets**

A `<worksheet>` is a specialized division that can be a child of most divisions and can contain most PreTeX tags.

**Tables**

Similar to LaTeX, PreTeX provides a `<table>` tag and a `<tabular>` tag. The `<tabular>` tag is used for producing the array of data, while the `<table>` tag provides the number and title.

**SageMath Content**

A SageMath cell can be included in a PreTeX document.

```xml
<sage>
	<input>2+2</input>
	<output>4</output>
</sage>
```

SageMath can be used to create an image in a PreTeX document.

```xml
<figure xml:id="fig-sage-cubic" width="50%">
	<caption>A cubic plotted by SageMath on [-3,2]</caption>
	<sageplot>
		f(x) = (x-1)*(x+1)*(x-2) plot(f, (x, -3, 2), color='blue', thickness=3)
	</sageplot>
</figure>
```