Swedish Agency for Accessible Media	MYNDIGHETEN FÖR TILLGÄNGLIGA MEDIER
Appendix: **Restricted Procurement of EPUB 3.0 Production Services** **Requirements for Quality Content Production in EPUB 3.0/XHTML** **Version: 2015-1**	

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1 Introduction

1.1 Background

This guidelines document has been provided by the following the agencies: Swedish Agency for Accessible Media (MTM), Celia Library in Finland, the Norwegian Library of Talking Books and Braille (NLB), Nota in Denmark, The National Agency for Special Needs Education and Schools (SPSM) in Sweden and Swiss Library for the Blind, Visually Impaired and Print Disabled (SBS).

These agencies produce a variety of text-based media adapted for persons with print disabilities. The Materials requiring adaptation include University texts, novels for adults, fact books for adults, novels for children, fact books for children as well as school textbooks for various subjects, including mathematics.

Fundamental to the process of adapting text-based media is the role of beginning with well-structured content. Previously this has been achieved through XML structures as defined by the ANSI/NISO Z39.86 specification for digital talking books (DTBook). The structures specified in these guidelines, however, are based on a profile of HTML5 requiring the use of XML serialization. This ensures that content can be reliably manipulated and rendered. Moreover, the EPUB Content Documents 3.0 specification provides constructs that further ensure semantically meaningful structures.

1.2 About the Guidelines

The EPUB structures and features specified in this document represent a restrictive set of requirements and alternatives designed to suit the needs of the Ordering Agencies. The purpose of these guidelines is to provide the producer with general requirements for EPUB production, as well as requiring or excluding specific alternatives existing in the EPUB 3.0 specification by addressing them explicitly.

In particular, this document attempts to aid the producer in recognizing the proper tags and attributes to apply in the creation of content documents.

1.2.1 Version 2015-1

Version 2015-1 is the most recent version of the guidelines. Earlier versions are therefore deprecated. Suppliers must not combine versions.

1.3 The Use of Editing Instructions

Editing instructions, i.e. written comments concerning particular solutions for a text to be rendered in EPUB, may be included by Ordering Agencies with each order. The role of Editing Instructions is to facilitate specific markup where room for alternative markup choices may exist. Editing instructions are based on and can refer to the requirements described in this document, and as such, must be adhered to by the Supplier.

2 Format Requirements

2.1 Required EPUB Standard

Suppliers are required to refer to the specifications provided in the current release of the EPUB standard, version 3.0 which is maintained by the International Digital Publishing Forum (IDPF). Application of subsequent versions will be required only when indicated by the Ordering Agency.

See http://www.idpf.org/epub/30/spec/epub30-overview.html.

2.2 Container

The EPUB container file must be given the production number provided with the order and correspond with the identifier stored in the `dc:identifier` element located in the Package metadata.

The container archive is required to have the `.epub` extension. The file extension must be lowercase.

Note that the `mimetype` file must be archived as the first file in the Container.

See http://www.idpf.org/epub/30/spec/epub30-ocf.html.

2.2.1 META-INF

The `container.xml` file must identify no more than one media alternative, unless indicated otherwise by the ordering agency.

No other files, optional or otherwise, are allowed in the META-INF directory unless specifically indicated by the ordering agency.

2.3 Publications

All publication resources are required to be located in a directory called EPUB. Publication resources other than the Package Document (`.opf`) and XHTML Content Documents are to be located in dedicated resource sub-directories.

2.3.1 Package Document

The following xml declaration must be used:

```
<?xml version="1.0" encoding="utf-8"?>
```

The package document namespace is **http://www.idpf.org/2007/opf**.

The name of the Package Document file is required to be `package.opf`.

Suppliers are required to use the file extension `.opf` for the Package Document.

Suppliers are required to apply the following attributes and values to the **<package>** element:

Attribute	Value
xmlns	http://www.idpf.org/2007/opf
xmlns:dc	http://purl.org/dc/elements/1.1/
version	3.0
unique-identifier	pub-identifier
prefix	nordic: http://www.mtm.se/epub/

Required child elements to the **<package>** element are:

- **<metadata>**
- **<manifest>**
- **<spine>**

2.3.2 Metadata

Suppliers are required to include the following elements with related attributes and values in the `<metadata>` element:

Element	**<dc:identifier>**
Element Content	**[production UID provided by ordering agency]**
Attribute	id
Value	pub-identifier

Element	<dc:title>
Element Content	**[title of the publication]**

Element	<dc: language>
Element Content	**[RFC5646 conformant value corresponding to publication language]**

Element	<dc:date>
Element Content	**[YYYY-MM-DD]**

Element	<dc:publisher>
Element Content	**[Name of the Ordering Agency]**

Element	<meta>
Element Content	**[CCYY-MM-DDThh:mm:ssZ]**

Attribute	`property`
Value	`dcterms:modified`
	The date for the `<meta>` element is required to reflect the last time the content was changed by the supplier.

Element	`<meta>`
Attribute	`name`
Value	`dcterms:modified`
Attribute	`content`
Value	**[CCYY-MM-DDThh:mm:ssZ]**
	Required OPF2 meta element for backwards compatibility with EPUB2 reading systems. The value for the `content` attribute is required to reflect the last time the content was changed by the supplier.

Element	`<dc:creator>`
Element Content	**[author of the publication]**

Element	`<dc:source>`
Element Content	`urn:isbn:` **[ISBN of the publication]**

Element	`<meta>`
Element Content	**[Value corresponding to current guidelines version]**
Attribute	`property`

Value	`nordic:guidelines`

Element	`<meta>`
Attribute	`name`
Value	`nordic:guidelines`
Attribute	`content`
Value	**[Value corresponding to current guidelines version]**
	Required OPF2 meta element for backwards compatibility with EPUB2 reading systems

Element	`<meta>`
Element Content	**[Name of the supplier for the EPUB 3.0 fileset]**
Attribute	`property`
Value	`nordic:supplier`

Element	`<meta>`
Attribute	`name`
Value	`nordic:supplier`
Attribute	`content`
Value	**[Name of the supplier for the EPUB 3.0 fileset]**
	Required OPF2 meta element for backwards compatibility with EPUB2 reading systems

The following elements are not required but may be requested specifically by the Ordering Agencies via editing instructions:

- `<dc:contributor>`
- `<dc:coverage>`
- `<dc:description>`
- `<dc:format>`
- `<dc:relation>`
- `<dc:rights>`
- `<dc:subject>`
- `<dc:type>`

2.3.3 Language Definition

Suppliers are required to identify specific languages and define them in EPUB package files using the `<dc:language>` element described above. A list of primary language codes is provided in the table below. Alternative tags that may be indicated by the Ordering Agency are listed in the right-most column.

Language	Code	Alternative tags
Norwegian	no	• nn-NO • nb-NO
Swedish	sv	• sv-FI
Finnish	fi	
Danish	da	
English	en	
German	de	• de-CH
French	fr	

Suppliers are required to contact the Ordering Agency for clarification in those cases where the majority language is not identifiable or when the majority language is none of the above languages.

2.3.4 Manifest

All publication documents and resources must be represented in the `<manifest>` element of the package.

Each document or resource must be defined by an `<item>` element.

Exactly one `<item>` element must define a superseded `ncx` content document.

The `fallback` attribute must be applied for each `<item>` element referencing a fallback resource contained in the EPUB. Fallback resources may be requested by the Ordering Agency at the time of order.

2.3.5 Spine

The reading order indicated by the sequence of `<itemref>` tags must correspond to the structure present in the provided source material unless requested otherwise by the ordering agency.

Further explanation regarding application of the `linear` attribute is provided with tag details in the following sections.

The `<spine>` element must carry a `toc` attribute identifying the manifest item that defines the superseded `ncx` content file.

2.4 Content Documents

2.4.1 XHTML

The XHTML content files specified by the EPUB 3.0 specification are based on HTML5. Suppliers are required however to use the extension `.xhtml`.

2.4.1.1 XML Declaration and Encoding

The following xml declaration must be used:

```
<?xml version="1.0" encoding="utf-8"?>
```

2.4.1.2 Document Type Declaration

The following document type declaration must be included:

```
<!DOCTYPE html>
```

2.4.1.3 HTML Root Attributes

Suppliers are required to include the following attributes on the `html` root element:

- `xmlns` – XML namespace
- `xmlns:epub` – EPUB namespace
- `epub:prefix` – Bound prefix to unique identifier string
- `xml:lang` – XML Language definition
- `lang` – HTML Language definition

2.4.1.4 Namespaces

The following namespace values are required to be applied to the namespace attributes:

- `xmlns=http://www.w3.org/1999/xhtml`
- `xmlns:epub="http://www.idpf.org/2007/ops"`

2.4.1.5 Prefix

The following prefix value is required to be applied to the `epub:prefix` attribute:

- `z3998: http://www.daisy.org/z3998/2012/vocab/structure/#`

2.4.1.6 Metadata - <head>

The following elements are required children to the `<head>` element:

Element	`<meta>`
Attribute	`charset`
Value	`UTF-8`
Description	Required first child

Element	<title>
Content	**[title of the publication. Must match value of dc:title in the package.]**
Attribute	
Value	
Description	Required second child

Element	<meta>
Attribute	name
Value	dc:identifier
Attribute	content
Value	**[production UID provided by ordering agency. Must match value of dc:identifier in the package.]**
Description	Required third child

Element	<meta>
Attribute	name
Value	viewport
Attribute	content
Value	width=device-width
Description	Required fourth child

2.4.1.7 Language Definition

Suppliers are required to identify primary languages for each content file instance using the `xml:lang` and `lang` attributes. The values for `xml:lang` and `lang` must be the same.

2.4.2 Navigation Documents

2.4.2.1 EPUB 3.0 Navigation Document

The string `nav` is required to be included in the file name for the file containing the publication `nav` element(s):

`nav.xhtml`

See also 3.1.2 File Naming Convention.

The following two `nav` element types are required to be present in the Navigation Document:

```
<nav epub:type="toc">
```

```
<nav epub:type="page-list">
```

2.4.2.2 NCX

The EPUB is required to contain an `ncx` file. The ncx file is required to have the extension `ncx`.

The string `nav` is required to be included in the file name:

```
nav.ncx
```

See http://www.idpf.org/epub/20/spec/OPF_2.0.1_draft.htm.

2.5 Images

Image content is required to be captured in the jpeg format. The format extension is required to be `.jpg`.

Suppliers are required to maintain the highest quality possible for the following:

1) Aspect ratio – aspect ratio of the original should always be maintained.
2) Colour images – images are required to be reproduced with no observable degradation in colour rendering.
3) Greyscale images – images are required to be reproduced without introducing visible compression artefacts, e.g. banding.
4) Text rich images – images in the work containing a preponderance of text, e.g. flowcharts, are required to be reproduced without introducing any degradation in legibility in comparison with the original.

Image files are required to be stored in a folder named *images*. The images folder must not contain subfolders.

2.5.1 Resizing of images

When resizing images:

A. Maximum image size is set to 600 pixels on the image"s longest side unless
B. an increase in the size of an image is required to achieve the legibility of text rich images, see point 4 above

In those circumstances where this requirement conflicts with requirements for legibility the Supplier is required to contact the Ordering Agency

2.6 CSS

Suppliers are required to include the standard CSS file issued by the Ordering Agencies. The CSS file is required to be stored in a folder named *css* and placed at the same level relative to the OPF.

The `<link>` element is required to be applied to the relevant content documents.

2.7 Fonts

Fonts present in PDF source material must not be included in the EPUB, unless specifically indicated by the Ordering Agency.

Suppliers must not include fonts in the EPUB unless requested otherwise by the Ordering Agencies.

Fonts, when present, must be stored in a folder named *fonts* and placed at the same level relative to the OPF.

2.8 Javascript

Javascript files requested by the Ordering Agency are required to be stored in a folder named *javascript* and placed on the same level relative to the OPF.

The `<script>` element is required to be applied to the relevant content documents.

3 General Requirements for Content Documents

3.1 XHTML Content Files

The EPUB Content File structure specified in these guidelines is generally made up of a multi-page HTML fileset. Major divisions of the publication are to be captured in individual XHTML content files. The individual content files will typically correspond to *Part* or *Chapter* divisions of the book. Other major book components such as colophon, index or appendix, which can be found in frontmatter and backmatter, will normally be stored in separate files as well.

The structural divisions of the publication are required to be semantically inflected by using the appropriate value with the `epub:type` attribute applied to the `<body>` element for each file instance. The `epub:type` attribute is required for all instances of `<body>` and must contain one of the following partition values:

- `frontmatter`
- `bodymatter`
- `backmatter`

Exceptions: `epub:type="cover"`.

The `epub:type` attribute may be required to contain more than one value. See 3.1.3 Primary Document Divisions.

3.1.1 General Note about the XHTML fileset and The Navigation Document

The EPUB Navigation Document is the file exposing the hierarchical structure of the publication. The individual files making up the XHTML fileset must correspond to the primary list items contained in the Navigation Document. Some requirements regarding document creation, however, may cause exceptions to this rule. Examples of such exceptions are:

Part - This division represents a structure that contains a series of chapters. In order to prevent the EPUB from containing excessively large content files, the guidelines require that the Part heading and only subsequent content relevant to the heading, must be contained in a separate XHTML file. The chapters are then required to be stored in individual files and referenced in the package `<spine>`. Even though this treatment of Part and Chapter headings may appear to flatten the heading structure at the document level, the logical heading structure for the chapters must be correctly reflected in the EPUB Navigation Document as nested `<li>` elements to a parent `<li>` referencing the part heading.

Chapter End Notes - Conversely, Chapter end notes should be shown in the Navigation Document to occupy the proper place and order in the chapter sub-heading hierarchy, even though these guidelines require that Chapter End Notes must be contained in a separate file.

3.1.2 File Naming Convention

The basic scheme for naming individual files is:

`[ pid ]-[ XX`**`X`**` ].xhtml`

Example:

`mtm000292-0`**`31`**`.xhtml`

The prefix `pid` must be identical to the value of the `dc:identifier` element. *XXX* denotes a unique numeric string corresponding to order in the `<spine>`. Note that zero (0) padding is required for placeholders in the XXX scheme.

Certain components of the publication, for example index or colophon, are required to be specified on the `body` element using the `epub:type` attribute. This specifier is required even to be included in the file name according to the following scheme:

`[ pid ]-XXX-[ `**`epub-type specifier`**` ].xhtml`

Example:

`mtm00103-105-index.xhtml`

Note however that the required `epub:type` values frontmatter, bodymatter and backmatter must not be included in the file name.

3.1.3 Primary Document Divisions

This section details requirements for the main document divisions that may be encountered in the EPUB. Note, however, that the following list of document types is not exhaustive and that additional terms from the EPUB 3 Structural Semantics Vocabulary for divisions, sections or components may be requested via Editing Instructions.

3.1.3.1 Cover

The content of the book's jacket copy must be contained in a file named `[ pid ]-[ XXX ]-cover.xhtml`.
The `epub:type` attribute must be applied to the `body` element.
The following value must be applied to the `epub:type` attribute:

```
epub:type="cover"
```

The `<h1>` element is required first in the `body`.

The following class attributes must applied to the child `<section>` elements where appropriate:

```
<section class="frontcover">
<section class="rearcover">
<section class="leftflap">
<section class="rightflap">
```

The frontcover, when available, must be captured as an `.jpg` image file and given the name `cover.jpg`. The `properties="cover-image"` attribute must be applied to the manifest `item` element corresponding to this image..

Note that the `linear="no"` attribute must be applied to the `itemref` element in the package spine corresponding to this content file.

3.1.3.2 Title page

The content of the book's title page must be contained in a file named `[ pid ]-[ XXX ]-titlepage.xhtml.`

Content corresponding to the publication's full title must be included in an `<h1>` element.

```
<h1 epub:type="fulltitle" class="title">
```

Use of the element is only required when a subtitle is present. The following attribute usage must be applied to the appropriate `<span>` element:

```
<span epub:type="title">
<span epub:type="subtitle">
```

The author name or entity responsible for creating the work must be indicated using the following markup:

```
<p epub:type="z3998:author" class="docauthor">.
```

3.1.3.3 Colophon

The page containing the book's colophon must be captured in a file named `[ pid ]-[ XXX ]-colophon.xhtml.`

The `epub:type` attribute must be applied to the `body` element.

Only one of the following pairs of values must be applied to the `epub:type` attribute:

```
epub:type="frontmatter colophon"
epub:type="backmatter colophon"
```

ISBN content when present must be included in a <p> tag and identified using the following attribute and value

```
class="isbn"
```

3.1.3.4 Table of Contents

If the source copy contains a main Table of Contents, the content is required to be tagged according to the guidelines detailed in section 4.18 Table of contents and contained in a file named `[ pid ]-[ XXX ]-toc.xhtml.`

The `epub:type` attribute must be applied to the `body` element. The required value for `epub:type` is `toc.`

Only one of the following values must also be applied to the `epub:type` attribute:

```
epub:type="frontmatter"
epub:type="backmatter"
```

Note that publishers commonly will include a brief table of contents at the beginning of parts or chapters. Such structures will also require `epub:type="toc".`

3.1.3.5 Part

A file corresponding to the each part division must be created and named `[ pid ]-[ XXX ]-part.xhtml.`

The `epub:type` attribute must be applied to the `body` element.

The following value must be applied to the `epub:type` attribute:

```
epub:type="part bodymatter".
```

The part heading must be included in an `<h1>` element. Though additional content may occur in this file, no content belonging to subsequent chapters is to be included in this file.

The `<body epub:type="part bodymatter">` must be stored in a separate xhtml file instance and given the name `[ pid ]-[ XXX ]-part.xhtml.`

3.1.3.6 Index

The content must be contained in a file named `[ pid ]-[ XXX ]-index.xhtml.`

The `epub:type` attribute must be applied to the `body` element.

The following value must be applied to the `epub:type` attribute:

```
epub:type="backmatter index"
```

3.1.3.7 Appendix

The content must be contained in a file named `[ pid ]-[ XXX ]-appendix.xhtml.`

The `epub:type` attribute must be applied to the `body` element.

The following value must be applied to the `epub:type` attribute:

```
epub:type="appendix backmatter"
```

3.1.3.8 Glossary

The content must be contained in a file named `[ pid ]-[ XXX ]-glossary.xhtml.`

The `epub:type` attribute must be applied to the `body` element.

The following value must be applied to the `epub:type` attribute:

```
epub:type="glossary backmatter"
```

3.1.3.9 Footnotes

The content must be contained in a file named `[ pid ]-[ XXX ]-footnotes.xhtml.`

The `epub:type` attribute must be applied to the `body` element.

The following value must be applied to the `epub:type` attribute:

```
epub:type="footnotes backmatter"
```

3.1.3.10 Rearnotes

The content must be contained in a file named `[ pid ]-[ XXX ]-rearnotes.xhtml.`

The `epub:type` attribute must be applied to the `body` element.

The following value pairs, where applicable, must be applied to the `epub:type` attribute:

```
epub:type="rearnotes backmatter"
epub:type="rearnotes bodymatter"
```

Note that when `epub:type="rearnotes bodymatter"` is applied to content representing chapter endnotes, the `linear="no"` must be applied to all corresponding `itemref` elements in the `.opf`.

3.1.4 Content Tag Reference

This section provides tagging details for various types of content present in the EPUB content files.

3.1.4.1 Annotation: <aside>

Shorter marginalia are to be marked using the `<aside>` element.

attributes:
```
epub:type="annotation"
class="annotation"
```

3.1.4.2 Annotation Reference <a epub:type="annoref">

Annotation references are required to retain that formatting found in the work and be appropriately marked up to mirror this, for example `<em>` or `<strong>`.

attributes:
```
epub:type="annoref"
class="annoref"
```

3.1.4.3 Quotations

3.1.4.3.1 Block: <blockquote>

The `<blockquote>` tag is used to mark up quotes broken out of the text flow. Markup may require `xml:lang` and `lang`.
In those circumstances where inline images occur in block quotations, Suppliers are required to place the image directly after the `<blockquote>` tag.

3.1.4.3.2 Inline: <q>

The `<q>` tag is used to mark up quotes occurring inline in the body text. Markup may require `xml:lang` and `lang`.

3.1.4.4 Bold Emphasis:

The `<strong>` element is to be used to identify bold text.

3.1.4.5 Title Page

The following attributes must be applied to the container elements of the appropriate text content where applicable:

Author: `epub:type="z3998:author"` and `class="docauthor"`

Title: `epub:type="fulltitle"` and `class="title"`

3.1.4.6 Chapter Notes (endnotes):

Suppliers are required to mark up chapter (endnotes) using the `<ol>` tag. Each collection of chapter endnotes is required to be contained in a separate file as detailed in 3 General Requirements for Content Documents.

Required attributes for each `<li>` element:

```
epub:type="rearnote"
class="notebody"
id="".
```

The value for the `id=""` attribute *must* correspond to the value of the `href=""` attribute in its associated `<epub:type"noteref" class="noteref">` tag

3.1.4.7 Code

3.1.4.7.1 Block: <pre> and <code>

Suppliers are required to mark up code content with the `<code>` element. For block instances containing several lines of code, the `<code>` element must be containd in a `<pre>` element.
Attributes:

Example:

```
<pre>
      <code>
      $a = shortcode_atts( array(
         'title' => 'My Title'
         'foo' => 123,
         ), $atts );
      </code>
</pre>
```

3.1.4.7.2 Inline: <code>

Suppliers are required to tag inline code content with the <code> element.

3.1.4.8 Definition Data: <dd>

Suppliers are required to mark up all definition data parts coupled to a <dt> with the <dd> tag. More than one definition data part can occur.

3.1.4.9 Definition List: <dl>

The <dl> tag is used to mark up lists of terms and their definitions.
Typical examples range from glossaries to lists of acronyms and the like.
The <dl> element is subject to *%flow* restrictions.

3.1.4.10 Definition Term: <dt>

Suppliers are required to mark up all individual definition terms within a definition list with the <dt> tag.

3.1.4.11 Footnotes:

Suppliers are required to move footnotes from their original position in the work to a single xhtml file as detailed in General Requirements for Content Documents.

Suppliers are required to mark up the collection of footnotes using the <ol> tag.

Required attributes for each <li> element:

```
epub:type="footnote"
class="notebody"
id="".
```

The value for the id="" attribute *must* correspond to the value of the href="" attribute in its associated <epub:type"noteref" class="noteref"> tag.

3.1.4.12 Headings: <h[x]>

The <h1> - <h6> elements are used to reflect the heading structure present in the source copy.
Note that <h[x]> tag must be contained within its respective container element.

Sectioning content that may require headings: <section>, <aside>, <nav>, <article>.

Note that for headings that do not contribute to the hierarchical structure of the work, <p epub:type="bridgehead" class="bridgehead"> may be specifically requested by the Ordering Agency via Editing Instructions.

3.1.4.13 Image Caption: <figcaption>

The <figcaption> element contains the text associated with an image in the original.
<figcaption> must always be placed directly after the appropriate <img> element.
If the <figcaption> text describes a series of images, the <figcaption> element must be placed first in the parent <figure> element containing the child <figure> elements belonging to the image series.

3.1.4.14 Images: <figure class="image">

An image and its caption must always be contained within the <figure> tag. The <figure> tag is required to contain a single image only.

Required attributes for the <figure> element containing an image:

```
class="image"
```

3.1.4.15 Images: <img>

The <img> tag represents all image-based content in the work.

The <img> element requires the following attributes:

- alt – this attribute is required to have the value image. See also 3.2.2 Handling of specific image types.
- src – this attribute must include a reference to an image file.
- id

Image tags must be formatted as self-closing tags, i.e.: <img/>.

3.1.4.16 Italic Emphasis:

The tag identifies italicised text.

3.1.4.17 Jacket copy

In those cases jacket copy is present in source material, the following attribute usage is required where applicable:

```
class="docauthor"
class="title"
class="isbn"
class="publisher"
```

3.1.4.18 Linegroup:

The tag is used to preserve the formatting of text grouped into line sets. The <p class="line"> tag is used to wrap the individual lines within the linegroup.

The inclusion of a element is required when line numbering is present. The attribute class="linenum" must be applied to the element containing the number content. One example of books requiring this type of markup is language textbooks.

3.1.4.19 List:

The <ol> tag is used to mark up ordered lists. Formatting such as numbers or roman numerals that may be associated with the ordered list items is required to be removed unless indicated otherwise by the Ordering Agencies.

If the ordered formatting is not of the decimal number type, then the type="" attribute is required to be applied to the <ol> element. The value for the type="" attribute must be a keyword marker type matching the ordering format present in the source original.

If the ordered formatting for the current instance of the <ol> element does not begin at the start of an ordered series, then the start="" attribute is required to be applied to the <ol> element. The value for the start="" attribute must be an integer corresponding to the ordinal value of the first <li> in the list.

If the ordered series of list items in the <ol> is descending, then application of the reversed="" attribute will be required. No value is required for this attribute.

When gaps occur in the ordering sequence of list items present in an <ol>, the value="" attribute must be applied to the <li> element corresponding to the point of continuation in the ordered series. The value for the value="" attribute must be an integer corresponding to the ordinal value of the list item.

3.1.4.20 List:

The <ul> tag is used to mark up unordered lists.
Formatting such as bullets or dash characters that may be present in the text node of the list items is required to be removed unless indicated otherwise by the Ordering Agencies.

3.1.4.21 List item:

Suppliers are required to mark up all individual items contained within a list with the <li> tag.

3.1.4.22 List item component:

The tag is used to isolate individual elements of information in a list item. It's primary use is in a table of

contents to differentiate between headings and page numbers.

3.1.4.23 Metadata: <meta>

See 2.4.1.6 Metadata

3.1.4.24 Note reference: <a>

Note references are required to be marked up using the `<a>` tag.
Required attributes:

```
href=""
epub:type="noteref"
class="noteref"
```

Suppliers are required to ensure that the `<a>` tag has the `href=""` attribute applied.
The value in the `href=""` attribute must correspond to the value of the `id=""` attribute in its associated `<aside>` tag.

3.1.4.25 Pagination

All page breaks occurring in the source copy are required to be indicated with one of the following elements unless stated otherwise by the Ordering Agency:

Inline: `<span epub:type="pagebreak"/>`

Other: `<div epub:type="pagebreak"/>`

Note that the `<div>` and `<span>` elements are required to be empty unless indicated otherwise by the ordering agency.

Additionally required attributes:

```
class=""
title=""
id=""
```

The value for the `title` attribute must be identical to the page number in the source copy. For empty pages occurring for example between chapters, the `title` attribute must have a value corresponding to the number implicit for that page.

In those cases where pagination of a text cannot be effectively represented using the following rules, the Supplier is required to contact the Ordering Agency.

3.1.4.25.1 Standard

The `class=""` attribute must have the value `page-normal`.

The attribute value `page-normal` can be used for pagination occurring in the all major divisions of the book, i.e. frontmatter, bodymatter and backmatter.

3.1.4.25.2 Frontmatter

The `class=""` attribute is required to contain one of the following values:

- `page-front`
- `page-normal`

The `class="page-front"` attribute is required when the page numbering series is not logically continued in the publication bodymatter, i.e. roman numerals**.**

Otherwise, the `class="page-normal` is required for standard numbering forms continuing beyond frontmatter.

.
The `<span>` or `<div>` elements with `class="page-front"` must only be applied to content considered frontmatter..

3.1.4.25.3 Other
The `class=""` attribute must have the value `page-special`.

Examples of content requiring this markup are: an appendix not numbered in a standard manner, e.g. a1, a2, a3, or where un-numbered inserts occur. For example: suites of photography.

Note that, in cases where a numbering system is not present, the following attribute usage should be applied: `class="page-special" title="[x]"/>`, where `[x]` represents a unique value provided by the supplier.

3.1.4.26 Paragraph: <p>
The `<p>` tag identifies a paragraph.

3.1.4.27 Poetry: <section epub:type="z3998:verse">
The `epub:type="z3998:verse"` attribute identifies poetry and lyric based content. The `class="poem"` attribute is also required to be applied to the contatiner element:

```
<section epub:type="z3998:verse" class="poem">
```

The <`div class="linegroup">` and `<p class="line">` tags are required children of `<section epub:type="z3998:verse">`.

Inclusion of the `<span>` element is required for `<p class="line">` when line numbering is present. The attribute `class="linenum"` must be applied to the `<span>` element containing the number content.

3.1.4.28 Production note: <aside>

Required attributes:

`epub:type="z3998:production"`

`class="prodnote"`

3.1.4.29 Rearnotes:
Suppliers are required to place rear notes occurring at the end of a publication in a separate file. See 3.1.3.10 Rearnotes.

Suppliers are required to mark up rear notes with the `<ol>` tag.

Required attributes for each `<li>` element:

`id=""`

`epub:type="rearnote"`

`class="notebody"`

The value in the `id=""` attribute *must* correspond to the value of the `href=""` attribute in its associated `<a epub:type="noteref">` tag

3.1.4.30 Sidebar: <aside epub:type="sidebar">
The `<aside>` element is used to mark up sidebar content, i.e. content that while contextually coherent may in terms

of its positioning on the page or graphical format be differentiated from the main flow of the text.
The Supplier is required to apply the following attributes and values:

```
epub:type="sidebar"
class="sidebar"
```

In some cases, Ordering Agencies will provide an instruction in Editing Instructions requesting `<figure epub:type="sidebar">` markup for this type of content. See also 4.12 Structure Requiring `<figure epub:type="sidebar">` markup.

Content within sidebar material is required to follow *%flow* rules.

3.1.4.31 Sidebar heading*:* <h[x]>

Suppliers are required to mark up headings associated with sidebar content in a `<h[x]>` tag. The heading must be contained in the `<aside epub:type="sidebar">` element.

3.1.4.32 Structural Content containers

The major divisions of the publication are represented by, and contained in, individual XHTML content files. For each content file, the `<body>` element is the top-level content container for that document. The `<h1>` tag is required when a heading is present and must follow directly after `<div epub:type="pagebreak"/>`, when present.

Further subdivisions of the content may be contained in the following elements:

- **<section>** - The `<section>` element is typically used to represent subsequent heading structures occurring in the document. Heading are to be marked up using the appropriate `<h2>` - `<h6>` tags. Note that the `<section>` element may not occur as first child to `<body>`.
- **<aside>** - The `<aside>` element is typically used to represent sidebars. Headings associated with such content are to be captured in the `<h[x]>` tag and contained in the parent `<aside>` element.
- **<article>**

3.1.4.33 Subscript: <sub>

The `<sub>` element identifies subscripted text.

3.1.4.34 Superscript: <sup>

The `<sup>` element identifies superscripted text. Note that use of `<sup>` to identify note references is incorrect

3.1.4.35 Table: <table>

The `<table>` element is required when content in the source copy is presented in tabular format or table-like format.

3.1.4.36 Table body: <tbody>

The `<tbody>` element is required to contain the main content of the table.

3.1.4.37 Table caption: <caption>

Suppliers are required to mark up table captions by using the **<**`caption`**>** tag.
Since the `<caption>` element is allowed only as first child to `<table>`, it may be necessary in some cases to relocate this content.

3.1.4.38 Table data: <td>

The `<td>` element is used to mark up table cell content.
Requires `colspan=""` and `rowspan=""`.
The `colspan=""` and `rowspan=""`attributes are used when a single cell stretches over a number of following cells in a table row or column. The attribute must have a numerical value.

3.1.4.39 Table footer: <tfoot>

In those circumstances where the table footer clearly falls within the parent table, Suppliers are required to use `<tfoot>`.
In those circumstances where the table footer follows the table and is not contained within a table cell, Suppliers are required to use `<p>`.
Where `<td>` is used, the `colspan=""` and `rowspan=""` attributes are to be applied when necessary.
In those cases where a table data stretches over more than one column or row, Suppliers are required to mark up using `colspan=""` and `rowspan=""` attributes.

3.1.4.40 Table head: <thead>

Suppliers are required to capture the rows containing column header content with the `<thead>` element.

3.1.4.41 Table heading (column & row): <th>

Suppliers are required to mark up column or row headings with the `<th>` tag.
Requires `colspan=""` and `rowspan=""`.
In those cases where table data stretches over more than one column or row, Suppliers are required to mark up using the `colspan=""` and `rowspan=""` attributes.

3.1.4.42 Table notes: <aside>

Suppliers are required to mark up table notes using the `<aside>` tag.
Required attributes:

```
id=""
epub:type="note"
class="notebody"
```

The value in the `id=""` attribute *must* correspond to the value of the `href=""` attribute in its associated `<a epub:type="noteref">` tag
To qualify as a table note, a reference needs to be present in the table data.
Notes must not be moved from their position within or following a table.

3.1.4.43 Table row: <tr>

The `<tr>` element is used to mark up table rows.

3.2 Requirements with regard to image reproduction

3.2.1 Image Content

Suppliers are required to deliver image content maintaining a level of 100% integrity to the source material in terms of:

a. Aspect ratio – aspect ratio of the original should always be maintained.
b. Colour images – images are required to be reproduced with no observable degradation in colour rendering.
c. Greyscale images – images are required to be reproduced without introducing visible compression artefacts, e.g. banding.
d. Text rich images – images in the work containing a preponderance of text, e.g. flow charts, are required to be reproduced without introducing any degradation in legibility in comparison with the original.

When resizing images:

a. Maximum image size is set to 600 pixels on the image's longest side unless
b. an increase in the size of an image is required to achieve the legibility of text rich images, see point d) above

In those circumstances where this requirement conflicts with requirements for legibility the Supplier is required to contact the Ordering Agency

Images are to be delivered in high quality (i.e. low compression) JPEG format

3.2.2 Handling of specific image types

Image content in books varies in both form and function. The following image types will require specific treatment:

- Publisher logotypes
- Vignettes – i.e. images used to separate sections or chapters, decorate borders or flyleaves, jackets or panels
- Iconic – i.e. an image that stands for its object by virtue of a resemblance or analogy to it
- Formatting – i.e. images that have no connection to the subject matter and are purely an artefact of layout and design

Handling of the preceding types of images should proceed as follows:

- Publisher logotypes – apply an empty `alt=""` attribute on the `<img>` tag. No value is to be included.
- Vignettes – apply an empty `alt=""` attribute on the `<img>` tag. No value is to be included.
- Iconic – apply an `alt=""` attribute on the `<img>` tag. The value to be included.will be provided by the Ordering Agency via editing instructions
- Formatting – apply an empty `alt=""` attribute on the `<img>` tag. No value is to be included.

3.2.3 Text External to Images and Skewing

Suppliers are required to deliver images free of all text external to the image itself, e.g. captions, headers, and footers etc. Suppliers are required to rectify images skewed as a result of conversion to EPUB.

4 Specific Requirements

4.1 Flow Content Restrictions

Suppliers are required to avoid certain markup structures such as combining ***block*** and ***inline*** elements in an inappropriate manner, even when allowable in the HTML5 content model.

Two examples of acceptable allowed markup using `<aside>` are:

Example 1:
Possible valid markup:

```
<aside>
Oh, see. Oh, see Jane. Funny, funny Jane.
</aside>
```

Example 2:
Required valid markup:

```
<aside>
<p>Oh, see. Oh, see Jane. Funny, funny Jane.</p>
</aside>
```

Example 3:
Markup valid according to HTML5 content model, though unacceptable:

```
<aside>
Oh, see. Oh, see Jane. <p>Funny, funny Jane.</p>
</aside>
```

While the example above is valid according to the HTML5 content model it mixes content and markup inappropriately, and produces semantically and structurally unclear mark up.
Suppliers are required to deliver materials free of such structures.

4.2 Nested Lists

A nested list will require the use of a list item containing both the text content and markup for the new nested list, for example:

```
<ul>
   <li>List item text.
       <ul>
          <li>List item text.</li>
          <li>Next list item text.</li>
       </ul>
    </li>
<ul>
```

However, this admixture of text content and markup is considered undesirable. The `<p>` element is required to be used by Suppliers to solve the issue as follows:

```
<ul>
   <li><p>List item text.</p>
       <ul>
          <li>List item text.</li>
          <li>Next list item text.</li>
       </ul>
    </li>
<ul>
```

4.3 Placement of Paragraph Breaking and 'Floating' Elements

The body text of a work may be interrupted by new or complementary content, e.g tables, images or sidebars. Such new or complementary content often has two types of placement that require that content be moved when marked up. Paragraph breaking content does precisely as the description implies, breaks the flow of a paragraph either between words or in the middle of words; and when being marked up requires relocation to preserve the flow of the content. So called "floating content" represent content that often occur entirely outside of the context of the text flow but on the same page, e.g. in the margin or in the text itself – though often distinguished from the text visually – and that when marked up requires placing in an appropriate context.

Note that the pagebreak treatment described in this section implies that the `<span>` element bearing the `epub:type="pagebreak"` must be changed to a `<div>` element.

4.3.1 Paragraph breaks existing on the page

The following requirements are to be applied when marking up such content:

- In those cases where paragraph breaking content is identified, Suppliers are required to relocate the marked up content to an appropriate location on the current page before or after the paragraph in which it occurs.
- In those cases where floating content is identified, Suppliers are required to relocate the content to an appropriate location on the current page before or after the paragraph it is parallel with.

4.3.2 Paragraph breaks not existing on the page

In those circumstances where an inline `<span epub:type="pagebreak"/>` tag occurs on both sides of the paragraph breaking element, Suppliers are required to apply the following:

- **Sentence or word breaking content**: Suppliers must move the text (up to and including the first sentence

ending punctuation mark) in front of the content that broke the word or sentence

- **Floating content**: Suppliers must move the text (up to and including the first sentence ending punctuation mark) in front of the content that broke the word or sentence.

Note that the above treatment applies even if additional pages containing full-page images occur between the text nodes to be merged, i.e. only the text nodes are moved.

Note also, such repositioning must not break the requirements for %flow or markup validity.
For the purposes of production those elements requiring identification are limited to tables, sidebars, and images.

4.4 Images Positioned Before Headings

In those cases where, at the beginning of a new section, an image occurs before a heading Suppliers are required to re-locate the image after the necessary heading markup, for example:

```
<section>
<div epub:type="pagebreak">101</div>
<h[x]>Heading</h[x]>
<figure>
<img src="" alt=""/>
<figcaption>Image caption text.</figcaption>
</figure>
…
</section>
```

4.5 Images Covering Two or More Pages

In those cases where images cover two or more pages, Suppliers are required to *not* split images over pages but deliver a single image marked up in the appropriate manner, and place that content on the page containing the initial instance of the image.

4.6 Image Series

Images occurring in groups should be first marked individually as detailed in 3.1.4.14 Images. The tagged images must then be placed in a parent `<figure>` element. If the image series begins with a caption, the caption text must captured in a `<figcaption>` and placed first in the parent `<figure>`.

Required attributes for the `<figure>` element containing an image series:

```
class="image-series"
```

4.7 Pagination: `epub:type="pagebreak"`

4.7.1 Placement of pagebreak markup in sectioned content

Suppliers are required to place pagebreak markup precisely at the verso-recto change.

Inline – `<span epub:type="pagebreak">`
Block – `<div epub:type="pagebreak">`

A `<div epub:type="pagebreak">` occurring at the beginning of an XHTML content document must follow directly after the `<body>` element and precede the `<h1>` element when present.

When a page begins with a `<section>` tag the `<div epub:type="pagebreak">` tag is to be placed directly after the start `<section>` tag and before any occurring `<h[x]>` tag.

4.7.2 Placement of pagebreak for empty pages

Suppliers are required to indicate the presence of empty pages by using the `<div epub:type="pagebreak"`

`class="page-[x]" title="[x]" id="[x]"/>` element. When empty pages occur between sections, the pagebreak markup must be placed last in the top-level element containing the preceding content. If the empty page occurs at the document level, for example between chapters, then the pagebreak markup must be included last in the preceding content document.

4.7.3 Placement of pagebreak markup in Conjunction with Page Change Hyphenation

Language specific rules apply in those circumstances where hyphenation occurs due to page change. Action taken will be based on the value of the root language. For example, where `xml:lang="en"` is the root the following applies:

In the original:
I have of late, but where-[change of page]fore I know not, lost all my mirth.

In the resulting `XHTML` file:
I have of late, but wherefore·`<span epub:type="pagebreak>`I know not, lost all my mirth.

Note – With regard to English language texts, the removal of hyphens found in compound words occurring at the page break is disallowed.

For example:
Removal disallowed:
What I expect, from all my boys, is a spirit of co-[change of page]operation at all times.

Removal allowed:
What we have here, is a failure to co-[change of page]mmunicate.

Ordering Agencies will supply required action with regard to this in editing instructions.

4.7.4 Repetitive Pagination

In those cases where an original's pagination includes repeated numbering (e.g. pages 1-18 for Part 1, pages 1-33 for Part 2 and pages 1-28 for Part 3), Suppliers are required to provide the `<body>` tag containing the set of pages with a `class="nonstandardpagination"` attribute. In conjunction with markup of this content, Suppliers are required to include the `class="page-special"` attribute to `<div epub:type="pagebreak">` or `<span epub:type="pagebreak">`.

4.7.5 Works Free of Pagination

Un-paginated works, particularly shorter children's literature and picture books, are required to be provided with pagination. Note that standard recto-verso order is to be maintained.

4.7.6 Un-numbered pages

In those cases where normal pagination is interrupted by the occurrence of pages absent of any form of pagination, e.g. pages containing a suite of photography, the following markup should be provided:
`<div epub:type="pagebreak" class="page-special" id="[x]"/>`, where `[x]` represents a value generated by the Supplier.

Note that the title attribute must be omitted for un-numbered pages.

Note also that Suppliers are required to indicate un-numbered pages in the in the Navigation Document by including a hyphen-minus character in the `nav page-list <li>` element corresponding to the un-numbered pagebreak.

4.8 Tables

When marking up page change in tables, Suppliers are required to insert a `<span epub:type="pagebreak">` tag

corresponding to the page break into the first `<td>` or `<th>` of the new page:

```
<tr>
    <td>A table cell</td>
    <td>A second table cell</td>
    <td>And a third table cell</td>
</tr>
<tr>
    <td><span epub:type="pagebreak" title="45" class="page-normal"/>A table cell</td>
    <td>A second table cell</td>
    <td>And a third table cell</td>
</tr>
```

4.9 Image groups

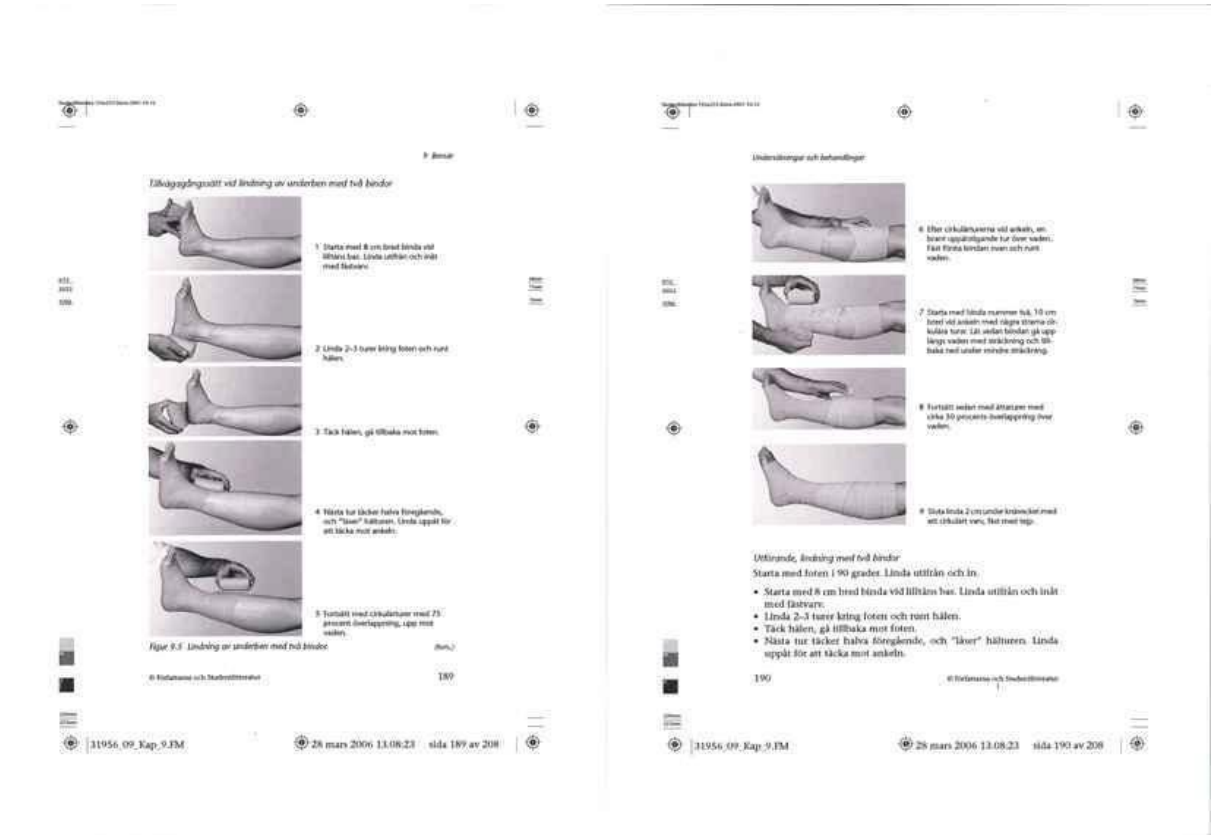
The markup of page numbering in image groups is dependent upon the layout of the images in question. Suppliers should be aware of two areas where particular attention is required to supply correct markup:

- Page number markup for images in series
- Page number markup for images over a double-page spread

When marking up page change inside a `<figure>` element containing an image series, Suppliers are required to place the `<div epub:type="pagebreak"/>` tag as sibling to other markup contained in the parent `<figure>` element.

4.9.1 Page number markup for images in series

The following image illustrates a typical image series breaking over two pages.

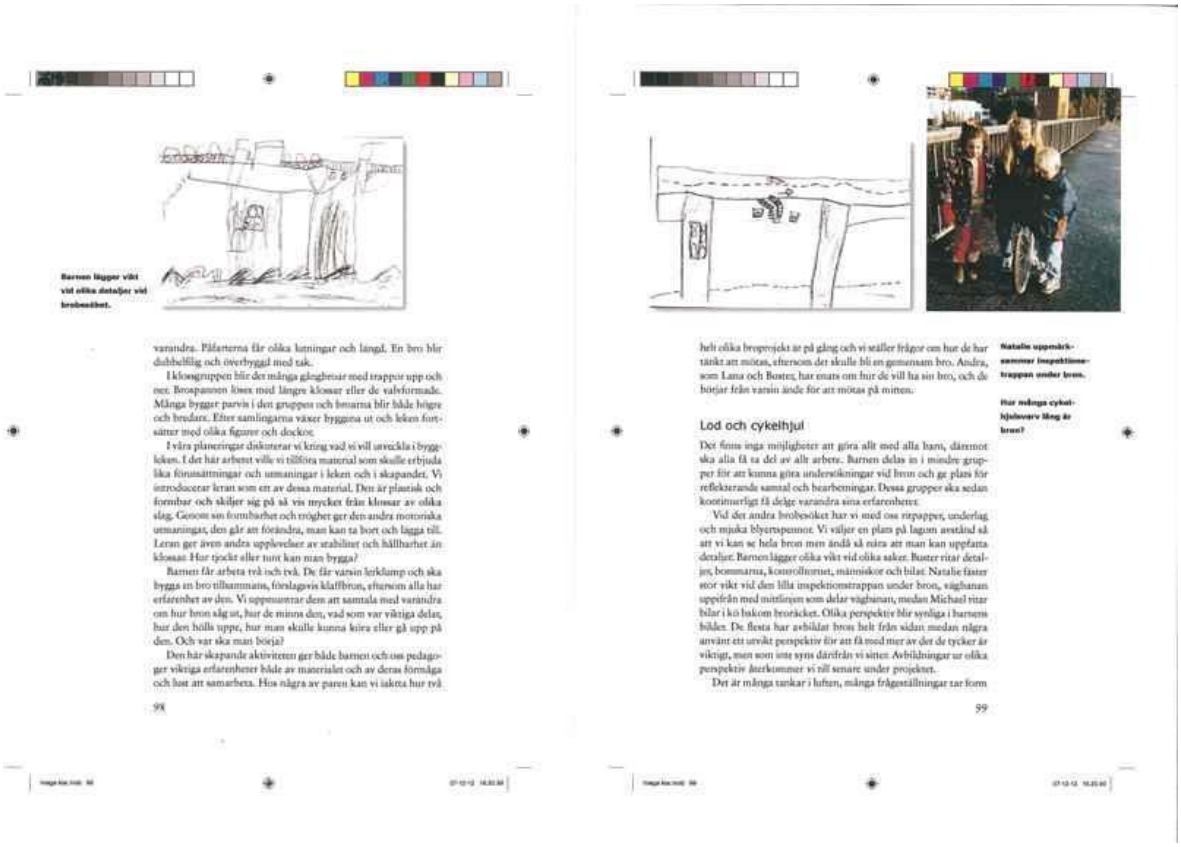


Suppliers should note that the series as a whole, on each page, possesses a caption. Furthermore, each individual

image possesses a caption.
The following code example illustrates required markup in such cases:

```
<div epub:type="pagebreak" title=”189”/>
<figure>
<figcaption>Series caption text.</caption>
      <figure>
            <img src="" alt=”image”/>
            <figcaption>Image caption text.</caption>
      </figure>
      <figure>
            <img src="" alt=”image”/>
            <figcaption>Image caption text.</caption>
      </figure>
      <figure>
            <img src="" alt=”image”/>
            <figcaption>Image caption text.</caption>
      </figure>
      <figure>
            <img src="" alt=”image”/>
            <figcaption>Image caption text.</caption>
      </figure>
      <div epub:type="pagebreak" title=”190”/>
      <figure>
            <img src="" alt=”image”/>
            <figcaption>Image caption text.</caption>
      </figure>
      <figure>
            <img src="" alt=”image”/>
            <figcaption>Image caption text.</caption>
      </figure>
      <figure>
            <img src="" alt=”image”/>
            <figcaption>Image caption text.</caption>
      </figure>
</figure>
```

The following image illustrates a more complex example of layout over a double-page spread, using an image series:



Barnen lägger vikt vid olika detaljer vid brobesöket.

varandra. Pråarterna får olika lutningar och längd. En bro blir dubbelfilig och överbyggd med tak.

I klassgruppen blir det många gångbroar med trappor upp och ner. Brospannen löses med längre klossar eller de valvformade. Många bygger parvis i den gruppen och broarna blir både högre och bredare. Efter samlingarna växer byggena ut och leken fortsätter med olika figurer och dockor.

I våra planeringar diskuterar vi kring vad vi vill utveckla i byggleken. I det här arbetet ville vi tillföra material som skulle erbjuda lika förutsättningar och utmaningar i leken och i skapandet. Vi introducerar leran som ett av dessa material. Den är plastisk och formbar och skiljer sig på så vis mycket från klossar av olika slag. Genom sin formbarhet och tröghet ger den andra motoriska utmaningar, den går att förändra, man kan ta bort och lägga till. Leran ger även andra upplevelser av stabilitet och hållbarhet än klossar. Hur tjockt eller tunt kan man bygga?

Barnen får arbeta två och två. De får varsin lerklump och ska bygga en bro tillsammans, förslagsvis klaffbron, eftersom alla har erfarenhet av den. Vi uppmuntrar dem att samtala med varandra om hur bron såg ut, hur de minns den, vad som var viktiga delar, hur den hölls uppe, hur man skulle kunna köra eller gå upp på den. Och var ska man börja?

Den här skapande aktiviteten ger både barnen och oss pedagoger viktiga erfarenheter både av materialet och av deras förmåga och lust att samarbeta. Hos några av paren kan vi iaktta hur två

98

helt olika broprojekt är på gång och vi ställer frågor om hur de har tänkt att mötas, eftersom det skulle bli en gemensam bro. Andra, som Lana och Buster, har enats om hur de vill ha sin bro, och de börjar från varsin ände för att mötas på mitten.

Natalie uppmärksammar inspektionstrappan under bron.

Hur många cykelhjulsvarv färdas Ming är bron?

Lod och cykelhjul

Det finns inga möjligheter att göra allt med alla barn, däremot ska alla få ta del av allt arbete. Barnen delas in i mindre grupper för att kunna göra undersökningar vid bron och ge plats för reflekterande samtal och bearbetningar. Dessa grupper ska sedan kontinuerligt få delge varandra sina erfarenheter.

Vid det andra brobesöket har vi med oss rutpapper, underlag och mjuka blyertspennor. Vi väljer en plats på lagom avstånd så att vi kan se hela bron men ändå så nära att man kan uppfatta detaljer. Barnen lägger olika vikt vid olika saker. Buster ritar detaljer, bommarna, kontrollrutan, människor och bilar. Natalie fäster stor vikt vid den lilla inspektionstrappan under bron, vägbanan uppifrån med mittlinjen som delar vägbanan, medan Michael ritar bilar i kö bakom broräcket. Olika perspektiv blir synliga i barnens bilder. De flesta har avbildat bron helt från sidan medan några använt ett urvikt perspektiv för att få med mer av det de tycker är viktigt, men som inte syns därifrån vi sitter. Avbildningar ur olika perspektiv återkommer vi till senare under projektet.

Det är många tankar i luften, många frågeställningar tar form

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Suppliers should note that the initial image is coupled to the second image and comprises a series. This means that the second image and its caption must be moved. Suppliers should also note that the placement of the `<div epub:type="pagebreak">` tag does not need to be within a `<figure>` tag.
The following code example illustrates required markup in such cases:

```
<div epub:type="pagebreak" title="98" class=”page-normal”/>
<figure>
      <figure>
      <img src="" alt=”image”/>
      <figcaption>First image caption text.</figcaption>
      </figure>
      <figure>
      <img src="" alt=”image”/>
      <caption>Second image caption text.</caption>
      </figure>
</figure>
<p>The text content of the page.</p>
<div epub:type="pagebreak" title="99" class=”page-normal”/>
<figure>
      <img src="" alt=”image”/>
      <caption>Third image caption text.</caption>
</figure>
<p>The text content of the page.</p>
<h[x]>Heading</h[x]>
<p>The text content of the page.</p>
```

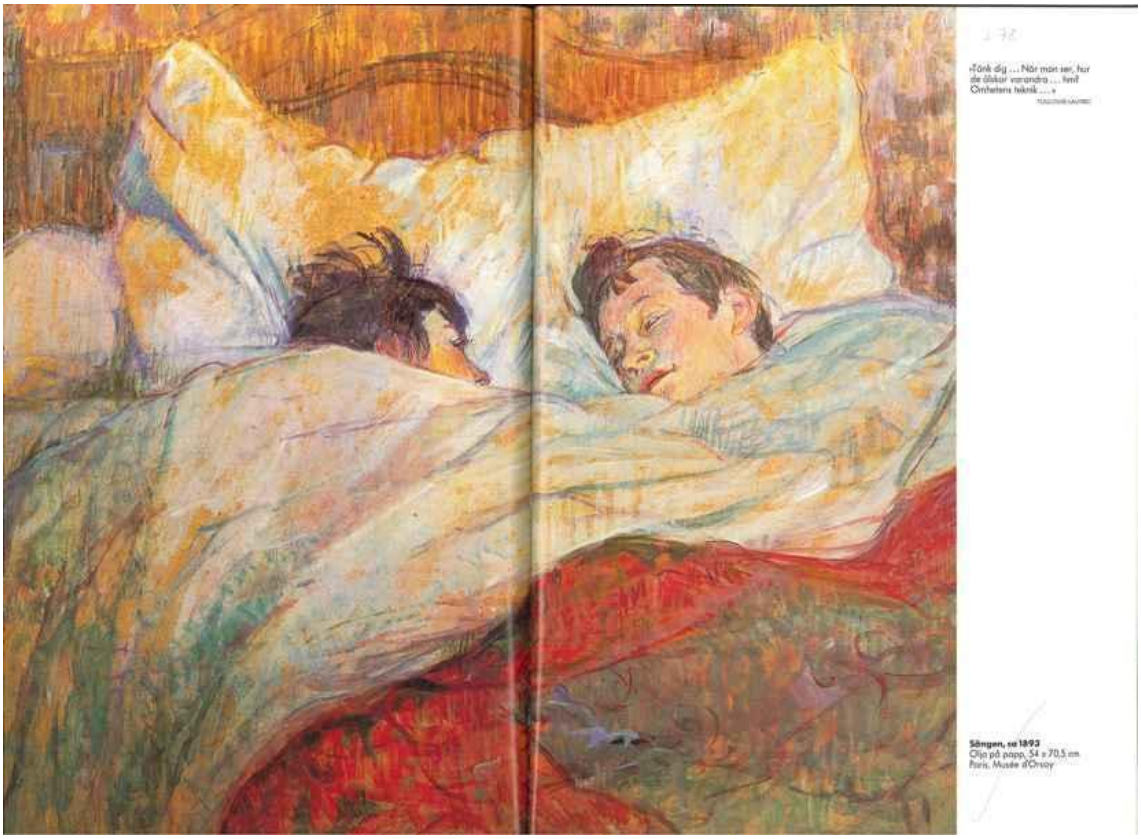
Continuation of markup …

Suppliers should note that regardless whether a single image or a series of images is laid out over the page break, the

requirements specified in 4.5 Images Covering Two or More Pages apply.
It's recommended that Suppiers contact the Ordering Agency for guidance before commencing production where layout of this kind occurs in source copy.

4.9.2 Page number markup for images extending over a double-page spread

The following image illustrates a straightforward example:



The following code example illustrates required markup in such cases:

```
<div epub:type="pagebreak" title="70" class=”page-normal”/>
      <figure>
            <figure>
            <img src="" alt=”image”/>
            <div epub:type="pagebreak" title="71" class=”page-normal”/>
            <figcaption>
                  <p>First caption text.</p>
                  <p>Second caption text.</p>
            </figcaption>
      </figure>
<div epub:type="pagebreak">72</div>
```

4.10 Structure Requiring `<section>` Markup

The subdivision headings of a content document are contained by the `<section>` tag.
A relatively common layout practice is the varying use of fonts when setting headings. This practice leads to discrepancies between a work's actual structures as opposed to the visual representation of its structure. For example, an introduction heading may have a font that is also applied to sub-headings in the remaining text. Suppliers must not represent this format with nested `<section>` tags.

4.11 Structure Requiring `<hr>` Markup

Titles that do not provide the same depth of navigation through heading structures may provide meaningful structure by using the common practice of indentation and/or empty lines to indicate a 'paragraph-level thematic break'.
In those circumstances where depth of structure is not amenable to structural markup using sectioning markup, Suppliers are required to provide the following structural markup to distinguish paragraph-level thematic breaks:

- `<hr class="emptyline"/>` – The `<hr>` element must be used with `class="emptyline"` to indicate thematic breaks represented by an empty line between paragraphs.

- `<hr class="separator"/>` – The `<hr>` element must be used with `class="separator"` to indicate thematic breaks represented by a visual marker such as an asterisk or horizontal rule between paragraphs. The visual marker must not be rendered in the content document.

4.12 Structure Requiring `<figure epub:type="sidebar">` Markup

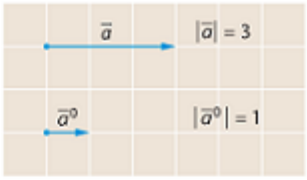
The Ordering Agencies may in some cases require `<figure epub:type="sidebar" class="sidebar">` markup as an alternative to `<aside epub:type="sidebar">`. The reason for this is that the content in question may be considered to have a more essential relationship to the surrounding content. This is not normally the case with content contained in the `<aside epub:type="sidebar">` element, where the relationship may be considered more tangential.

In the following example, Ordering Agencies could require `<figure epub:type="sidebar" class="sidebar">` markup for the bordered content occurring in the light blue background:

Yksikkövektori

Vektorin jakaminen luvulla tarkoittaa vektorin kertomista käänteisluvulla.

Yksikkövektori on vektori, jonka pituus on 1. Vektorin kanssa samansuuntainen yksikkövektori saadaan jakamalla vektori pituudellaan. Vektorin $\overline{a}$ kanssa samansuuntaista yksikkövektoria merkitään $\overline{a}^0$:lla.



Yksikkövektorin avulla on helppo muodostaa mielivaltaisen pituinen, tunnetun vektorin kanssa samansuuntainen vektori.

LAUSE

Yksikkövektori

Vektorin $\overline{a} \neq \overline{0}$ kanssa samansuuntainen yksikkövektori on

$$\overline{a}^0 = \frac{\overline{a}}{|\overline{a}|}, \quad \text{jossa } |\overline{a}| \text{ on vektorin } \overline{a} \text{ pituus}$$

Pätee siis $\overline{a} \uparrow\uparrow \overline{a}^0$ ja $|\overline{a}^0| = 1$.

Esimerkki 3

Olkoon $\overline{a} = -\overline{b} + 3\overline{c}$ ja $|\overline{a}| = 4$. Muodosta vektorin $\overline{a}$ kanssa

a) samansuuntainen yksikkövektori
b) samansuuntainen vektori, jonka pituus on 5
c) vastakkaissuuntainen yksikkövektori.

Ratkaisu

a) $\overline{a}^0 = \dfrac{\overline{a}}{|\overline{a}|} = \dfrac{-\overline{b} + 3\overline{c}}{4} = -\frac{1}{4}\overline{b} + \frac{3}{4}\overline{c}$

b) Vektorin $\overline{a}$ kanssa samansuuntainen yksikkövektori on $\overline{a}^0 = -\frac{1}{4}\overline{b} + \frac{3}{4}\overline{c}$. Näin ollen samansuuntainen vektori, jonka pituus on 5, on

$$5\overline{a}^0 = 5(-\tfrac{1}{4}\overline{b} + \tfrac{3}{4}\overline{c}) = -\tfrac{5}{4}\overline{b} + \tfrac{15}{4}\overline{c}$$

c) Vastakkaissuuntainen yksikkövektori on

$$-\overline{a}^0 = -(-\tfrac{1}{4}\overline{b} + \tfrac{3}{4}\overline{c}) = \tfrac{1}{4}\overline{b} - \tfrac{3}{4}\overline{c}$$

Vastaus a) $\overline{a}^0 = -\frac{1}{4}\overline{b} + \frac{3}{4}\overline{c}$ b) $-\frac{5}{4}\overline{b} + \frac{15}{4}\overline{c}$ c) $-\overline{a}^0 = \frac{1}{4}\overline{b} - \frac{3}{4}\overline{c}$

1.3 YHDENSUUNTAISUUS 31

Note that the `<figcaption>` element must be applied when headings associated with this content are present.

4.13 Lists stretching over two or more pages

In those cases where lists stretch over a series of pages, Suppliers are required to mark up the list content in accordance with the following:

- Lists extending over two or more pages that contain numbers of shorter list items or nested lists are required

to be marked up using appropriate <ol> or <ul> markup.

- Lists extending over two or more pages that contain paragraph elements that in turn may contain other element content may require multiple <ol> or <ul> tags. The <ol> element will require the start attribute for each iteration of the ordered series..

4.14 Attribute usage

Suppliers are required to use and apply tag attributes defined in these requirements **only**, unless otherwise indicated by the *Ordering Agency*.

4.14.1 id attributes

The values for the id attribute are required to be unique across the entire EPUB fileset.

4.15 Markup of Block Element Language attributes

Longer text extracts (at least one whole sentence) whose language is not that stated in the root element are required to be marked up with the xml:lang attribute.
Inline text is not required to be marked up unless ordered specifically by the Ordering Agency as optional markup.
Block elements that may require the xml:lang attribute are:

- <p>
-
-
- <table>
-
- <section>
- <aside>
- <blockquote>

Suppliers are required to use the IETF RFC 3066 standard for language identification.
If the language is included in the ISO 639-1 standard, Suppliers are required to use the two-letter code.

4.16 Title Page

Details of the title, author, and publisher can often be found repeated at the beginning of the source copy. This content must be stored in a single xhtml file. The attribute epub:type="titlepage" is required to be applied to the body element.

4.17 Colophon and Similar Publisher Material

Any colophon and similar material present in the work's front matter is required to be included in an <body epub:type="colophon"> element. Typical content can include, though not exclusively, publisher specific content, printer specific content, copyright content, ISBN and translator.
The colophon page content must be stored in a separate xhtml file.

4.18 Table of Contents

Suppliers are required to supply <ol> markup for works containing a table of contents. A epub:type="" attribute is required to be applied to the <body> element. One of the following values sets is required:

```
epub:type=”frontmatter toc”

epub:type=”backmatter toc”
```

Note that each entry in the table of contents is required to be linked to the corresponding epub:type=”pagebreak” matching the referenced page.

Example:

```
<body epub:type"frontmatter toc">
<div epub:type="pagebreak" title="vi" class=”page-front”/>
<h1>Table of Contents</h1>
<ol>
      <li>
            <a href="mtm06350-1.xhtml#d130172e14"><span class="lic">Chapter 1</span>
            <span class="lic">1</span></a>
      </li>
      <li>
            <a href="mtm06350-2.xhtml#d130172e59"><span class="lic">Chapter 2</span>
            <span class="lic">15</span></a>
      </li>
      <li>
            <a href="mtm06350-3.xhtml#d130172e935"><span class="lic">Chapter 3</span>
            <span class="lic">30</span></a>
      </li>

[...]

</ol>
</body>
```

Whitespace or other formatting between items in the table of contents should be normalized to a single space character between `<span>` elements.

Note that publishers commonly will include a brief table of contents at the beginning of parts or chapters. Such structures will also require `epub:type="toc"`.

4.19 Introductory Texts

If an "Introduction" or material of a similar nature **is numbered in accordance with the original's other headings**, Suppliers are required to treat such material as bodymatter.
Otherwise, this type of material is required to be treated as frontmatter `xhtml`.instance. The `epub:type="frontmatter"` attribute must be applied.

4.20 Index Content

Suppliers are required to supply `<ol>` markup for works containing an index. A `epub:type="backmatter index"` attribute with the value `index` is required to be applied to the `<body>` element.

4.21 Rear notes content

In those circumstances where a heading for the rear notes section of a work does not exist Suppliers are required to supply a heading, i.e.: `<h[x]>Notes</h[x]>`

4.22 Line numbering

Certain types of content have associated line numbering, e.g. school texts. Where line numbering occurs, Suppliers are required to mark up the line in question using the ***<p class="line">*** tag and thereafter mark up the number using the ****** tag.
To preserve paragraph structure it is also required to contain ***<p class="line">*** tags in the *** *** tag.
Where this content is identified, Suppliers will receive guidance via editing instructions from the Ordering Agency.

4.23 Linegroup formatting of text

Certain types of books, particularly children's books, will contain text formatted throughout the work as line sets. When such content is identified, use of the *** *** and ***<p class="line">*** tags may be preferred instead of the ***<p>*** tag. Suppliers will receive guidance via editing instructions from the Ordering Agency.

4.24 Empty Elements

Suppliers are required to deliver XHTML files free of empty elements, exceptions to this are:

- <img/>
-
- <meta/>
- <link/>
- <td/>
-
-

4.25 Typographic Emphasis and Line Breaks in Headings

Typographic emphasis found in headings is required to be removed. Headings <h1> to <h6> are therefore required to be free from and markup unless indicated otherwise by the Ordering Agency.

Line breaks occurring in headings must not be represented.

4.26 Drop cap initials

When content of this type is identified the character must be rendered as non-formatted text and not contained in an or tag.

4.27 Handwritten, underlined text, circled text, or crossed-out text

Typically, such content may be rendered with or tags. However, if the Ordering Agency has requested optional markup, then treatment is required. See 5.3 Inline Text Styling.

4.28 Special Character Representation

Suppliers are required to contact ordering entities for a clarification of requirements when punctuation, typography, and special characters beyond the scope of the following rules occur.

4.28.1 Hyphen Character Representation

Note that Suppliers are *not* required to interpret the usage of the listed characters in those circumstances where typographer choice differs from established or common usage.
Suppliers are required to deliver the following representation:

- Hyphen-Minus characters are required to be represented using Unicode (Hex.) 002D
- En dash characters are required to be represented using Unicode (Hex.) 2013
- Em dash characters are to be represented using Unicode (Hex.) 2014
- Horizontal Bar (a.k.a. Quotation Dash) characters are required to be represented using Unicode (Hex.) 2015

4.28.2 Hyphenation Occurring Due to Line Breaks or Page Change

Hyphenation at margins occurring due to line breaks or page changes are required to be removed.

4.28.3 Representation of Arrows

Suppliers are required to represent text containing arrows accurately. Suppliers are required to represent such characters using the appropriate Unicode code point from the span: Unicode (Hex.) 2190 to Unicode (Hex.) 2199.

4.28.4 Representation of Phonetics

Suppliers are required to represent text containing phonetic notation accurately using the appropriate Unicode code

point from the spans:

- Unicode (Hex.) 0250 to Unicode (Hex.) 02AF (IPA Extensions)
- Unicode (Hex.) 1D00 to Unicode (Hex.) 1D7F (Phonetic Extensions)
- Unicode (Hex.) 1D80 to Unicode (Hex.) 1DBF (Phonetic Extensions Supplement)
- Unicode (Hex.) A700 to Unicode (Hex.) A71F (Modifier Tone Letters)
- Unicode (Hex.) 02B0 to Unicode (Hex.) 02FF (Spacing Modifier Letters)
- Unicode (Hex.) 2070 to Unicode (Hex.) 209F (Superscripts and Subscripts)

Suppliers are required to contact the Ordering Agency for clarification of requirements before commencing production when phonetic notation occurs in originals.

4.28.5 Representation of Pictograms, Ideograms and Logograms

The Ordering Agency will provide the Supplier at order time with Edit Instructions detailing the specific handling of such content.

5 Requirements for optional markup

5.1 Markup and notation for mathematics

The ASCIIMath notation system is used for presenting mathematics in a linear form.
The purpose of using ASCIIMath is to be able to write mathematics and other formulae in a way that can be presented to different users in ways that suit their needs in different media.
ASCIIMath allows a degree of flexibility, however, since many students read ASCIIMath exactly as it is written, it is important to use consistent notation. Suppliers are required to follow those requirements for notation and markup in the `xhtml` files defined in this document.

5.1.1 Basic guidelines

All math expressions present in a text are to be marked up and notated using ASCIIMath when such work is included in an order. It is not allowed to use Unicode character representation for mathematical entities when ASCIIMath is ordered, i.e. α should be marked up `alpha` in every instance.

Expressions consisting of single numbers or letters are required to be left without markup and ASCIIMath notation, unless requested otherwise by the Ordering Agency via editing instructions.

Only text that is directly part of a math expression is to be included in markup and ASCIIMath notation.

Where parts of a math expression are boldface, italicized, underlined or coloured the Ordering Agency undertakes to provide the Supplier with relevant information regarding mark up in editing instructions. If no instruction is provided, Suppliers should mark up the fonts only with ASCIIMath entites, i.e. ℝ is `RR`

Note that double quotes (") must only be used to identify text in notation, grouping of numbers or variables in math expressions must be made using brackets.

Suppliers should not introduce redundant brackets in expressions, only if an expression needs brackets to preserve its structure, or if brackets are included in the printed book (even if they are not strictly needed), they must be included in the markup.

Remove possible spaces in big numbers like 100 000. Such numbers are not rendered correctly if the spaces are not removed.

Use only dot (.) as a decimal delimiter. The use of comma(,) as a decimal delimiter is disallowed in spite of what is printed in the book.

ASCIIMath expressions must be enclosed by back-ticks, i.e. `math expression`.

The use of Unicode is disallowed in ASCIIMath markup.

The use of LaTex syntax is disallowed in ASCIIMath markup.

The use of HTML inline elements is disallowed in ASCIIMath markup.

Text that is part of a math expression must be enclosed using double quotation marks, e.g.:

`10 " cm"^2`

It is necessary to add spaces at the start and/or end of a quotation-marked text depending on which end of the text is towards the math expression.

5.1.2 Markup convention

The following list describes the markup necessary for mathematics:

- Where inline mathematics occur the following markup convention is required:
  `<span class="asciimath">`math expression`</span>`
- Where block mathematics occur the following markup convention is required:
  `<p><span class="asciimath">`block math expression`</span></p>`

5.1.3 Notation convention using examples

The following examples show different uses of notation.

Example: Markup of full expression with decimal numbers and big numbers with spaces

Expression: 0,5 · 100 · 1500 - 65 000 = 10 000

Markup: `<span class="asciimath">`0.5 * 100 * 1500 - 65000 = 10000`</span>`

Example: Markup of full expression with text and fractions

Expression: $$\text{Lutningen} = \frac{\text{höjden av ett trappsteg}}{\text{bredden av ett trappsteg}} = \frac{3}{5} = 0{,}6$$

Markup: `<span class="asciimath">`"Lutningen" = "höjden av ett trappsteg"/"bredden av ett trappsteg" = 3/5 = 0.6`</span>`

Example: Use of less than (<) and greater than (>)

Expression: $p^2 > 5q$

Markup: `<span class="asciimath">`p^2 > 5q`</span>`

Expression: $p^2 < 5q$

Markup: `<span class="asciimath">`p^2 < 5q`</span>`

Expression: 3x - 2 ≥ 20

Markup: `<span class="asciimath">`3x - 2 >= 20`</span>`

Expression: 0 < x ≤ 10

Markup: `<span class="asciimath">`0 < x <= 10`</span>`

Comment: ">" and "lt" that are the standard ASCIIMath markup for "greater than" and "less than" **shall not** be used.

Example: Correct grouping with parentheses

Expression: $\frac{4x^3}{3x}$

Markup: `<span class="asciimath">`(4x^3)/(3x)`</span>`

Expression: $\frac{5a}{5}=\frac{125}{5}$

Markup: `<span class="asciimath">`(5a)/5=125/5`</span>`

Comment: Very common problem in previous productions are missing grouping with brackets when the denominator or nominator contains compound expressions, as in the examples above. Be extra careful with this.

Example: Answer fields in ASCIIMath notation

Expression: $(n - 2)^2 = \square - 5n + \square$

Markup: `<span class="asciimath">`(n - 2)^2 = "---" - 5n + "---"`</span>`

Comment: the answer field indicated by a check box in the expression is to be replaced as shown in the exemplified markup. Suppliers are required to supply this answer field markup when such occurs in inside math expressions, and not that answer field markup defined under the previous section on answer fields.

Example: Omitted brackets

Expression: $\sqrt{43}$

Markup: `<span class="asciimath">`sqrt 43`</span>`

Comment: Omit brackets here. This works for single operands. Note that space is needed for readability for those

who read ASCIIMath as it is written.

Expression: $\sqrt{43 \cdot 4}$

Markup: `<span class="asciimath">`sqrt (43 * 4)`</span>`

Comment: Do not omit brackets here. Both examples are correct. Just remember to double check the grouping. When omitting brackets remember that the mark-up should be easy to read as it is**.**

5.1.4 Exceptions to standard ASCIIMath markup

The following table shows a list of character transformations that Suppliers are required to include in their ASCIIMath notation.
When a certain character is not referred in the table, standard ASCIIMath notation should be used. If the character is not defined in standard ASCIIMath, suppliers should contact the Ordering Agency for further advice.

Printed book	Required ASCIIMath Notation	Notice
,	**.**	This refers to decimal delimiter
.	**.**	This refers to decimal delimiter
‰	**:%**	
°	**^@**	The degree sign
>	**>**	gt and > not allowed
<	**<**	lt and < not allowed
≥	**>=**	ge and >= not allowed
≤	**<=**	le and <= not allowed
→	**rarr**	-> not allowed
↦	**|->**	|-> not allowed
⇄	**rlreaction**	

5.1.5 Ocular Check of ASCIIMath in EPUB

Suppliers are required to carry out a visual control of how the AsciiMath is rendered in the EPUB file.The mathematics should be presented in a similar way as in the printed book.

The ASCIIMath code itself must also be checked directly in the EPUB content files. It is important that Unicode characters outside the ASCII-range are not used.

Links to additional resources:

1. **Programs and fonts needed**
   - ASCIIMathML.js script, http://www1.chapman.edu/~jipsen/mathml/asciimathdownload/
   - If using Firefox you may need to install MathML fonts, https://developer.mozilla.org/en/Mozilla_MathML_Project/Fonts

2. **More about ASCIIMath**

http://www1.chapman.edu/~jipsen/mathml/asciimath.html

5.2 Handling of content specific to school level texts

5.2.1 Markup of exercises and answers

The occurrence of exercises and related answer fields is common in school texts.
In those circumstances where requirements do not cover a particular type of exercise, contact should be made with the appropriate Ordering Agency.
Markup of exercises and answers is not considered standard for all texts and Ordering Agencies undertake to inform Suppliers in editing instructions when this markup will be used.

5.2.1.1 Exercises containing punctuation

In certain books punctuation may occur in exercises. When marking up such exercises punctuation may need to be removed.

5.2.1.2 Numbered exercises

Exercises will often be numbered in some way. Numbering may have a primary and a secondary indicator, for example:

Example:

100 a) What is the name of the capital city of Madagascar?

The requirement here is that both the primary and secondary indicators need to be marked up, i.e.:

Markup example:

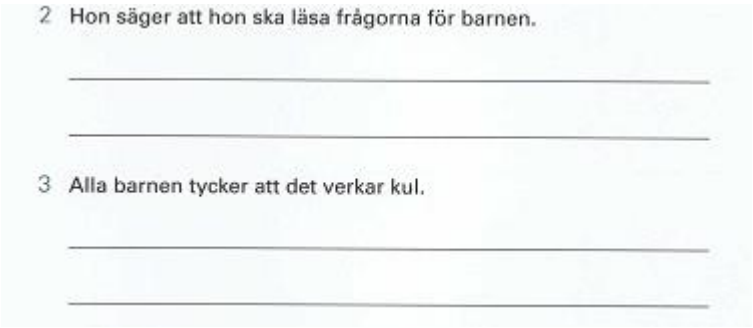
```
<p>
<span class="exercisenumber">100</span>
<span class="excercisepart">a)</span>
What is the name of the capital city of Madagascar?
</p>
```

Other forms of numbering may occur but the principle is the same: each exercise number itself must be identified and marked up, and thereafter each part. Note that the text in the exercise itself needs no particular markup, but is contained within a `<p>` tag.
Line breaks in exercises may be required to be represented by space or `<br/>`. The Ordering Agencies will indicate this treatment via the editing instructions.
The use of `<span>` without a class attribute is not allowed when marking up exercises.

5.2.1.3 Answer fields

Markup of such content uses the `<span>` tag and a specific attribute for each field.
Answer fields comprising a single or many lines need only be indicated as occurring in a text, e.g.:

Example:



The requirement here is that each field is replaced by three hyphens and represented using the tag and attribute, i.e.:

Markup example:

```
<p>
2 Hon säger att hon ska läsa frågorna för barnen.
<span class="answer">---</span>
3 Alla barnen tycker att det verkar kul.
<span class="answer">---</span>
</p>
```

Answer fields may also comprise a single space or a series of spaces within an exercise, e.g.:

Example:

10 b) Fill in the missing letter: DTBo_k

The requirement here is that each field is represented using the tag and attribute, i.e.:

Markup example:

```
<p>
<span class="exercisenumber">10</span>
<span class="exercisepart">b)</span>
Fill in the missing letter: DTBo<span class="answer_1">-</span>k
</p>
```

Note that each missing character is required to be marked up with `<span class="answer_1">`.
Accuracy with regard to the representation of whitespace characters is crucial in this form of markup.

Answer fields may also comprise so called ballot boxes, e.g.:

Example:

Would you like some candy? Yes ☐ No ☐

The requirement here is that each field is represented using the tag and attribute, i.e.:

Markup example:

```
<p>
Would you like some candy?
Yes <span class="box">---</span>
No <span class="box">---</span>
</p>
```

5.2.2 Markup of inline language attributes

Certain school texts, primarily concerning language learning, require definition of the language in use on an inline level. Segments of the original such as glossaries, references, indices, and appendices, may include terms, titles, names, and the like, that deviate from the document's majority language. These inline elements will require application of the `xml:lang` and `lang` attributes.

In those circumstances where requirements do not cover a particular type of inline language markup contact should be made with the appropriate Ordering Agency. Markup of inline language attributes is not considered standard for all texts and Ordering Agencies undertake to inform Suppliers in editing instructions when this markup will be used.

See also 2.3.3 Language Definition.

5.3 Inline Text Styling

The Ordering Agencies may require the application of `class` attributes for styling purposes. The class attribute must be applied to a `<span>` element containing the relevant text content. The following table presents the values that Suppliers may be requested to apply:

Text values	Colored text values	Colored background values
bold	maroon	maroon-bg
italic	red	red-bg
handwritten	orange	orange-bg
crossed-out	yellow	yellow-bg
underlined	olive	olive-bg
	purple	purple-bg
	fuchsia	fuchsia-bg
	white	lime-bg
	lime	green-bg
	green	navy-bg
	navy	blue-bg
	blue	aqua-bg
	aqua	teal-bg
	teal	black-bg
	silver	silver-bg

	`gray`	`gray-bg`

If the element being styled contains a class resulting from other optional requirements, the styling value must be placed after any other occurring value and be separated by a space.

Note that Suppliers must not apply styling to block elements unless requested otherwise by the Ordering Agencies.

Note also that the above properties are predefined in the standard CSS issued by the Ordering Agencies.

5.4 Extraction of text content in images

Certain image types contain text that an Ordering Agency may require extracting and placed in relevant markup. Ordering agencies will indicate whether this optional is to be included in the EPUB and provide an explanation in the Editing Instructions of which images require text extraction.

Suppliers are required to place extracted text in a correctly marked up production note using the `<aside>` tag and include the attributes `epub:type="z3998:production"` and `class="prodnote"`. The `<aside epub:type="z3998:production" class="prodnote">` markup must be placed directly following the relevant `<img>` tag. In those cases where an image caption is present, the `<aside epub:type="z3998:production" class="prodnote">` tag must be placed before the `<figcaption>` tag.