



READ@HOME

Guidance Note on the Production of Reading Materials

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This note is part of a series being prepared by the Read@Home team to support World Bank teams as they procure teaching and learning materials (textbooks, teacher's guides, and supplementary reading materials). For more information, contact co-TTLs Amanda Devercelli (adevercelli@worldbank.org) and Peter Holland (pholland@worldbank.org). To access additional resources, follow this link: <https://www.worldbank.org/en/topic/education/brief/read-at-home>



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ACRONYMS

CoC	Chain of Custody
FSC	Forest Stewardship Council
GSM	Grams per square meter
NGOs	Non-governmental organizations
ISO	Information Standards Organization
PEFC	Programme for the Endorsement of Forest Certification
PUR	Polyurethane glue
SIL	Formerly the Summer Institute of Linguistics, now SIL International
USAID	United States Agency for International Development
USD	United States Dollars



INTRODUCTION

Access to books (textbooks, teacher’s guides, and materials for reading practice)¹ is key to addressing Learning Poverty. Children need to be exposed to sufficient and appropriate text, and they need to be afforded the time and opportunity to practice reading in school and at home. Appropriate design of reading books will facilitate learning, support instruction, and promote independent learning (Marinelli, 2011).

This guidance note focuses on straightforward, standard approaches that World Bank teams and clients can use to increase the usefulness and durability and decrease the costs of books in education programs. It does not address book content, which is covered in the Read@Home Manual (<https://thedocs.worldbank.org/en/doc/786b435688a243c8b7a6f3014055edfe-0140062021/related/APRIL12-2021-Read-HomeManual.pdf>) or procurement, which is covered in the Read@Home procurement guidance (link). Used together, these resources should facilitate the processes of book development and procurement in World Bank-supported projects.

Book design is crucial for readability, particularly for beginning readers. The first section of this note describes appropriate font types and sizes based on script and grade level, as well as best practices for letter and word spacing. The “physical characteristics” of books determine printing costs and durability to a large degree, and so the second section discusses these, with a focus on paper and binding. Printing methods and printer selection are critical for book quality and on-time delivery and so the fourth section covers printing methods and printer selection. Finishing is the last step in book production and one that is often overlooked and is covered in the fifth section. The note ends with a short list of key recommendations.

This guidance note draws heavily on “Best Practices for Developing Supplementary Reading Materials,” primarily authored by the blueTree Group and published by USAID in 2014. You can access the original “Best Practices” report at https://pdf.usaid.gov/pdf_docs/PA00JV69.pdf.

¹ Materials for reading practice include fiction (storybooks) and non-fiction books. They may also include storycards, read-aloud books, board books, other book genres, and letter and other manipulatives for young readers.

1 TEXT DESIGN

A. FONTS AND SPACING

i. Font types

Children learn to read more easily when text is printed in less complex fonts, also known as sans serif fonts. The uniform thickness of sans-serif fonts supports children’s letter recognition because the printed text in their books more closely resembles the hand-printed text that they see on the chalkboard and in their own writing (Keyes, 1993).

The Andika font, for Latin scripts², was developed by SIL International specifically to address the needs of beginning readers and is highly recommended as a font for early grade reading materials. It is a free, open source font. Other recommended fonts include Helvetica, Arial, Cordia New, and Levenim MT (which is an example of a non-Latin font). These fonts generally come with MS Word and other applications. Fonts for beginning readers are available for many non-Latin scripts.

Table 1

Selected Font Types Suitable for Use in Developing Early Grade Reading Materials

Font	Example	Notes On Features & Availability
Andika	The quick brown fox jumps over the lazy dog.	Wide range of characters available to write materials in thousands of languages. Available at no cost. Licensed under the SIL Open Font License through SIL international. Available for download: http://scripts.sil.org/cms/scripts/page.php?item_id=Andika_download
Helvetica	The quick brown fox jumps over the lazy dog.	Available in a wide range of variations. Available for download: http://www.linotype.com/526/helvetica-family.html
Arial	The quick brown fox jumps over the lazy dog.	Available in a wide range of variations. Usually available as part of the standard font range of common word- processing packages such as MS Word.

² Latin script, which is the script used to write English, is a set of graphic signs based on the letters of the classical Latin alphabet. Non-Latin scripts include Arabic, Cyrillic, Greek, and many others.

Font	Example	Notes On Features & Availability
Andika	The quick brown fox jumps over the lazy dog.	Available in a wide range of variations. Available for download: http://www.linotype.com/526/helvetica-family.html
Cordia New	The quick brown fox jumps over the lazy dog.	Usually available as part of the standard font range of common word-processing packages such as MS Word.

Links to sites where a range of sans-serif fonts can be downloaded for free:

- <https://software.sil.org/>
- <http://www.fontspace.com/category/sans-serif>
- <http://www.fontsquirrel.com/fonts/list/style/Sans%20Serif>
- <http://fontzone.net/font-details/microsoft-sans-serif>

ii. Font size

Increasing font size improves reading rates (fluency) and comprehension until the rate of increase reaches a plateau, called the critical print size (CPS). When children receive adequate amounts of good quality instruction, they generally reach that plateau in second grade (Marinelli, 2011). Materials intended for independent reading (such as storybooks) need larger font sizes than those used for teacher-facilitated instruction (such as textbooks). Recommended font size varies by script, as scripts have varying degrees of complexity. For scripts other than those below, a review of recent research and consultation with country experts is recommended.

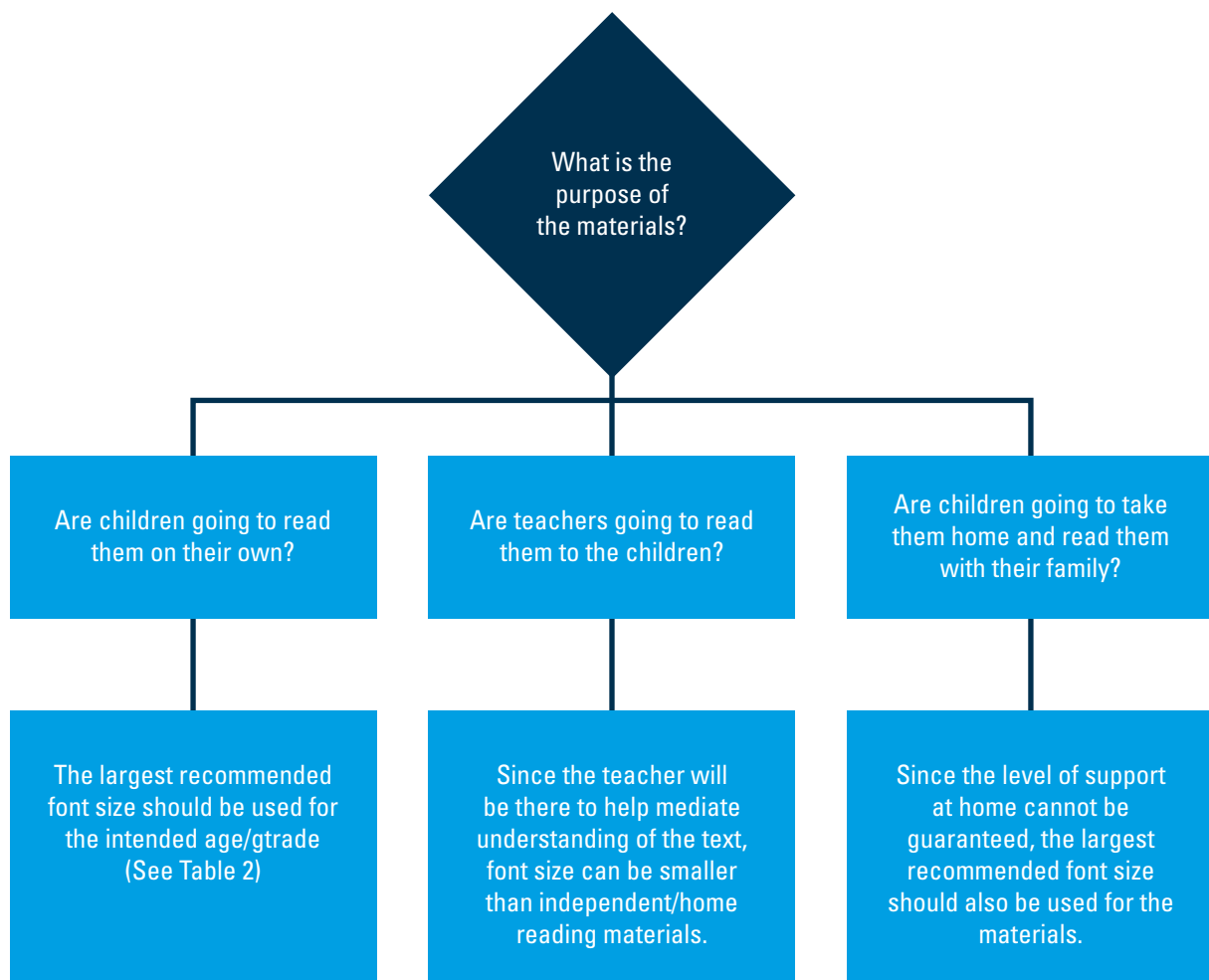
Table 2

Recommendations for Font Size for Reading Materials (for independent reading)

Visual Aspect	Kindergarten or Reception (± 5 years)	Grade 1 (± 6 years)	Grade 2 (± 7 years old)	Grade 3 (± 8 years old)
Font Size - Depends on script type; all sizes provided are approximate.				
English/Latin script	30-32 points	28-30 points	26-28 points	24-26 points
Thai/Arabic script	38 points	36 points	34 points	32 points

Figure 1

Font Guidelines are influenced by the Intended Purpose of the Reading Materials



iii. Spacing

Effective spacing enables readers to process more typographic cues (font, font size, color). Changes in the surrounding white space makes features such as headings or bold text stand out more, increasing the extent to which learners can process this information (Keyes, 1993).

The spacing after story titles, between titles and text, between pictures and text, and between lines can enhance learners' ability to understand the story. If spacing decreases hierarchically (proportionally), then learners can distinguish the "information chunks" more easily. For example, if the spacing between the main heading and the subheading is four lines, then the spacing between the subheading and the text should be two lines (Keyes, 1993).

Table 3

Recommendations for Letter and Word Spacing and Alignment

Visual Aspect	Grade K or R (± 5 years)	Grade 1 (± 6 years)	Grade 2 (± 7 years old)	Grade 3 (± 8 years old)
Number of words per line	Approximately 3 to 4 words per line	Approximately 4 to 6 words per line	Approximately 6 to 8 words per line	Approximately 8 to 10 words per line
Suggested spacing	Three letter spaces between words and slightly expanded spacing between the letters of each word. Standard spacing: the spacing used in normal Courier text: 1.16 times the width of the lowercase x. Do not expand the spacing between letters by more than 10 percent— i.e., more than 1.28 times the width of the lowercase x used in the normal Courier text.			
Number of lines per page	Approximately 4 to 5 lines of text per page	Approximately 4 to 6 lines of text per page; increase density from beginning of the book to end of the book	Approximately 6 to 8 lines of text per page; density does not increase as substantially as in grade 1	Approximately 8 to 10 lines of text per page; again, the density should remain more or less the same throughout the book
Suggested spacing	Text should be left-aligned text (for Latin scripts) or right-aligned text (for Arabic scripts) with clear, hierarchical spacing between elements such as headings, paragraphs, and lines within a paragraph. If the standard spacing is double spacing between individual lines, then there should be 4 line spaces between paragraphs and 6 line spaces between headings/titles and the first paragraph/line of text. If there is only one paragraph on the page and a heading, then there should be about 4 lines of space between the heading and text.			
Bold and italic text	The use of bold and italic text (excluding titles) is not recommended for early grade reading material because they are additional typographic cues that must be processed by the student. Bold text also adds to the tonality of the page, so it should be used sparingly.			

2 PHYSICAL CHARACTERISTICS OF BOOKS

The process of producing books starts with decisions about extent (the number of pages), format (size), quantities, paper and binding.

A. EXTENT

Extent is frequently called the number of pages. A sheet of paper on which book content is printed is folded two or more times to create a set of 8 or 16 pages called a *signature*. Signatures are gathered together to form a book. The economical specification for the number of pages of a book is one that is a multiple of 4 pages: 64, 80, 96, and so on. Ordering to manufacture a book of irregular extent, say, 66 pages will result in signature stripping (costly) or in blank pages (costly and wasteful).

B. FORMAT

Format is frequently called size. Sheets of printing paper are made following ISO dimensions (width x height in mm). The sheets when folded become standard book formats (width x height in mm). Using standard sizes reduces paper waste, thus reducing cost. This is especially critical when designing storybooks. If storybooks are printed in non-standard sizes, the resulting paper waste greatly reduces cost-effectiveness. The appropriate formats produce textbooks that are not too small for an early grader to handle nor too large for a shared desk in a crowded classroom, a teacher guide that lays flat on a desk or in the teacher's hands, a story book to take home in a backpack. Some examples:

Table 4

Some popular formats

Format	Typical Use	Metric millimeters	English inches
Large	Student textbook Workbook Teacher guide	A4: 210 X 297 (8¼ x 11½ in)	8½ x 11 (216 x 280 mm)
Medium	Student reading book	B5: 176 x 250 (7 x 9¼ in)	7 x 10 (178 x 254 mm)
Small	Student reading book	A5: 148 x 210 (5¾ x 8½ in)	6 x 9 (152 x 228 mm) 5¼ x 8¼ (140 x 209 mm)

Textbooks

For primary and secondary books, A4 format (210 mm x 297 mm – about 8¼ x 11¾ in).

- In portrait mode (upright), it accommodates a variety of page layouts (the way text and illustrations are arranged on a book page).
- Allows wide margins and large illustrations for lower grades, or two or more text columns and graphs and charts for upper grades.

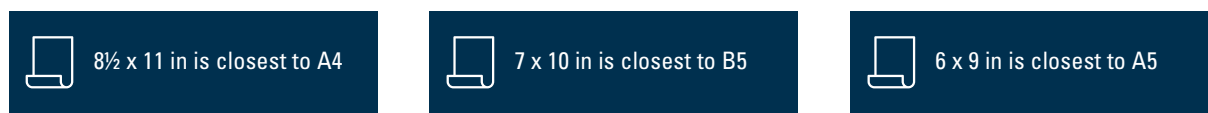
Workbooks, Exercise Books Teacher Editions

- The textbook format A4 in portrait for workbooks is useful in science and mathematics which require space for examples, exercises, and drills.
- The same A4 but in landscape mode (lengthwise, the fold or binding on the short end of the page) for workbooks for writing, music notation, or art.
- The landscape mode is also useful for teacher editions reproducing textbook facsimile pages on the inner areas near the fold and annotations for the teacher on the outer edges of the page.

Reading Books

A small format such as A5 (148 mm x 210 mm – about 5¾ x 8½ in) is convenient for storybooks (trade books), including “chapter” books which are mostly text with occasional illustrations.

In countries where the printing industry follows US standards where paper sheets and book formats are expressed in inches, the nearest equivalents to ISO book formats are the following:



C. QUANTITY

Quantity means ordering enough copies. Book printing is expressed in thousand copies. Here’s one example of calculating the order quantity for a textbook *:

Step 1	Use this year’s enrollment for the grade (Policy: 1 textbook per student)	1,366,896
Step 2	Add reserve stock to replace lost or destroyed copies (Estimated at 9%, or 3% per year for 3 years)	123,021
Step 3	Add copies for enrolment increase (Country projection: 3%, or 1% per year for 3 years)	41,007
Step 4	Add teachers’ copies (Grade enrolment by 40 students per class)	34,172
Step 5	Add copies to round up to nearest carton (Each carton contains 40 copies)	24
Total order quantity – Number of copies		1,565,120
Total order quantity – Number of cartons (Total copies times 40)		39,128

*Estimating the additional quantities for increase in enrollment should also calculate for the expected physical life of the book (Step 2). Reserve stocks should be delivered to schools, and the school’s inventory of useable books should be monitored periodically.

*The enrollment projection should match expected book life and reserve stock should be delivered to schools with original stock and carefully tracked at school level.

D. PAPER

Paper accounts for a large part of the production costs of reading books. The quality of paper and binding are the key determinants of the quality and durability of books. This section provides an overview of the types of paper that are appropriate for books in education projects.

i. Types of paper

There are two main types of paper: uncoated and coated.

- Coated and uncoated paper can be used for books. Only coated paper (coated on one or both sides) is used for book covers.
- Coated paper increasingly being used for books. Matte coated paper avoids light reflection and provides a better image and text definition because the surface of the paper is smoother. It is particularly adapted for illustrated reading books
- Uncoated paper is commonly used for books.

Paper is classified according to its weight in grams per square meter (gsm). GSM determines opacity. Commonly available paper ranges from 35 gsm (translucent tracing paper) to 450 gsm (used for cards and invitations).

In general:

- 80 gsm paper offers sufficient opacity for textbooks, teacher's guides, and books for reading practice.
- Workbooks and other consumable materials may be printed on lighter paper.
- Book covers should be printed on 250 gsm paper.

Interior and Cover Paper

- *Paper for inside pages* – Typically newsprint for workbooks (57 gsm, equivalent to US basis weight 35 lbs) and heavier paper (80 gsm, US basis weight 50 lbs) for textbooks, teacher's guides, and supplemental books.
- *Paper for book covers* (also called cover stock) for paperbound textbooks and reading books is a heavier, thicker paper. A cover stock weighing 250 gsm in international standard will have the closest US basis weight of 66 lbs.

Paper has many additional characteristics. Three to be familiar with are brightness, whiteness, and shade. Brightness measures the way paper reflects a specific wavelength of blue light and is used because human eyes perceive paper with a blueish tint as whiter than the neutral white of the color spectrum. Whiteness describes the degree to which paper reflects light of all colors and more closely corresponds to our perceptions. Shade describes subtle differences in paper color. There are three groups of white shades: cream white, bright white, and true white. Most book printing uses paper of higher brightness and cream or neutral white, to increase readability and decrease fatigue.³

ii. Paper costs

Paper always represents the largest cost in book production. As a global commodity, paper prices fluctuate significantly from day to day. A price offered today may be significantly higher or lower in two weeks. Some large printing contracts therefore separate production costs and paper costs to account for price fluctuations.

It is important to consider the following to ensure the best possible paper prices:

³ Hammermill Whiteness and Brightness Info Sheet.

A printer with well-established relationships with paper suppliers can guarantee availability, buying in bulk when prices are favorable, and offering economies of scale/negotiating power to obtain the best pricing. Without paper in stock, it takes longer to print due to the time needed to receive the paper.

Ordering well in advance allows paper suppliers to get the best prices.

iii. Impact of import policies

In many developing countries, local printers face a competitive disadvantage as import duties are levied on paper, ink and other materials needed to produce books. Finished books are, however, exempted from import duties following the Florence Agreement and Nairobi Protocols.⁴ This import policy can make it difficult for local printers to compete with international printers on cost.

iv. Sustainability

More than 70 percent of paper in the world is made from wood taken from forests in regions with ecologically valuable, biologically diverse habitats. Each year, about 13 million hectares of the world's forests are lost due to deforestation. Paper that is not sourced from sustainably managed forestry might be cheaper, but comes at a very high price for the environment.

There are two major trade groups that provide verification that forests are managed sustainably: the Forest Stewardship Council™ (FSC™) and the Programme for the Endorsement of Forest Certification (PEFC). Books printed by a printer who has FSC™ (Forest Stewardship Council™) and CoC (Chain of Custody) certification carry the FSC™ CoC product label, which provides independent international verification that the products can be traced back from their point of origin to responsible, well- managed forestry and controlled and recycled sources.

⁴ The Florence Agreement, officially the Agreement on the Importation of Educational, Scientific, and Cultural Materials, is a 1950 UNESCO treaty whereby countries agreed not to impose customs duties on imported educational materials, including textbooks. The Nairobi Protocol is an affirmation of and expansion of the Florence Agreement and was signed in 1976.

3 PRINTING

Printing methods should be chosen based on the project's scale (the number of copies needed, also called the size of the print run) and context. The following table briefly explains the various printing techniques in relation to the volumes to be printed.

A. PRINTING TECHNIQUES

Table 5

Print Runs and Types of Printing

Number of copies	1– 1000	1000–10,000	10,000–10,000 +	100,000 +	10,000+
Type of printing	Digital	Sheet-fed	Heatset web offset	Publication gravure	Coldset
Production method	Uses plate-less toner based printing devices. Digital information printed via ink cartridges directly onto paper.	Ready-made sheets go directly into the press.	Intermediate, rubber blanket used to transfer printing ink to paper surface. The inked printing plate transfers ink to the blanket, which then applies ink to paper.	Use copper cylinders to print on paper.	Intermediate, rubber blanket is used to transfer printing ink to paper surface. The inked printing plate transfers ink to the blanket, which then applies ink to the paper.
Characteristics	<ul style="list-style-type: none"> - Quick turnaround time - Limited paper options - High per unit cost 	<ul style="list-style-type: none"> - Coated and uncoated stock - 28 gsm to 350 gsm - Ideal for covers 	<ul style="list-style-type: none"> - Heatset utilizes drying lamps or heaters to cure or "set" the inks - Coated, uncoated, mechanical or newsprint - 40 to 200 gsm 	<ul style="list-style-type: none"> - Set up time is longer but cylinders last longer; less maintenance so suitable for high volumes - Good quality on lower quality paper, coated or uncoated - 32 to 115 gsm 	<ul style="list-style-type: none"> - Ink dries through absorption into paper - Ink can smudge so mostly for newspapers - Only uncoated paper

In the case of large-scale book procurement, international or regional procurement is often advised for two reasons:

- Printers with a range of presses have more flexibility and can utilize them in ways most well-suited to a particular project, resulting in greater cost and time efficiency; and
- Modern presses are also quicker, more efficient, and deliver a higher quality product.

When local sourcing is required, it is important to make the best use of available technology. However, local printers may face considerable challenges accessing capital to acquire the most

effective technology and training for their personnel. This accounts for lower machine capacity and underdeveloped finishing capacity (see following sections for more information on finishing). Much of the binding is still done manually, and PUR perfect binding is often not available. If the goal is to produce books with more than a one year lifespan, PUR binding is a prerequisite (see following sections for additional information on binding).

B. PRINTER SELECTION

Professional printers offer a range of services that determine the success of a well-planned and prepared order.

Considerations for print capability include:

- **Capacity:** The printer selected should have the capacity to deliver the full volumes required within the deadlines. Further outsourcing may result in quality differences in delivered materials, additional transport requirements, and delivery and distribution challenges.
- **Efficiency:** Modern technology provides greater production-cost efficiency, higher quality, and quicker turnaround while reducing environmental impact by decreasing waste and energy usage.
- **Quality:** Higher quality production results in longer lasting materials. This is measured by consistent color, correct collation of the sections, and durable binding. The printer should have integrated quality controls in place to measure results throughout the production process.
- **Risk management:** In a dynamic environment, assurance is needed that the printer has considered all production risks to guarantee delivery within the timeframe required. This includes guaranteed stock supplies, production, resources, and power backup.
- **Accountability:** The printer needs to have an integrated data management system that measures, tracks, and reports on quantities produced against quantities ordered to provide auditable verification of delivery.

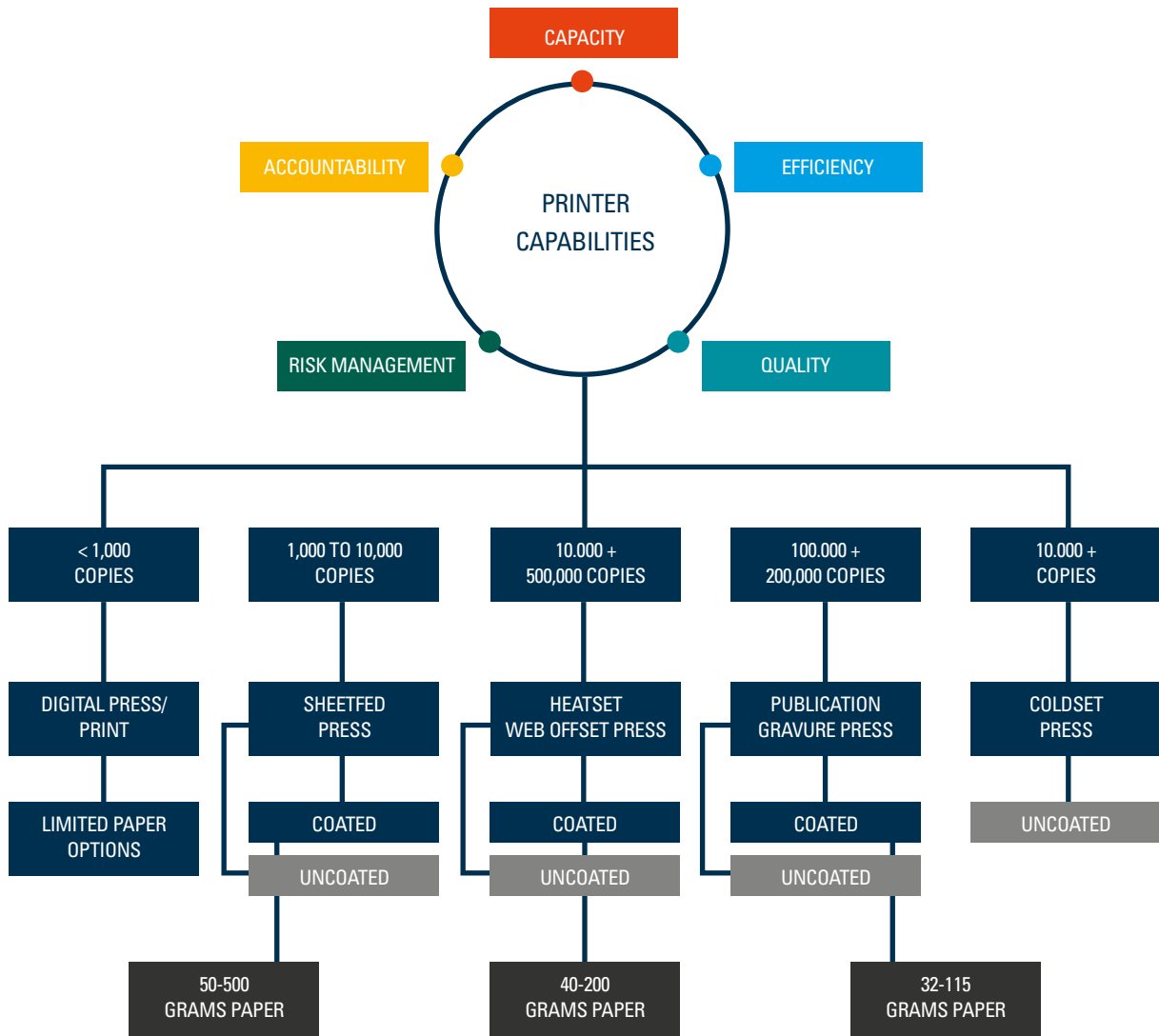
When procuring large scale printing, commercial printers, often regional or international will usually be able to offer different printing methods that can be matched to the client's needs. For example, if 500,000 textbooks and 5,000 teacher guides are needed, the materials can be produced on different presses if that will improve quality and decrease costs. The all-around capacity of a printer will improve the likelihood of timely delivery of competitive prices and durable books.

C. SELECTING A TYPE OF PRINTING

The size of a print order predicts the most appropriate production method. A multitude of large commercial printers are available for the provision of medium and large print orders. However, it is important to consider smaller scale solutions, especially when providing materials for small projects and small language communities.

The following figure shows how to determine the most cost-effective form of printing.

VOLUMES



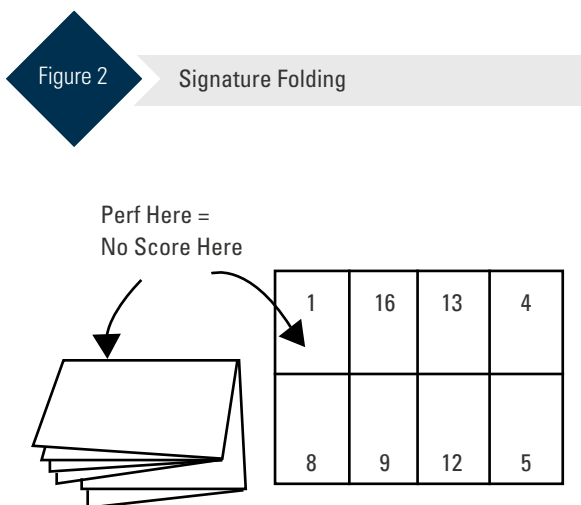
4 FINISHING BOOKS

After printing, books are “finished,” a process that includes folding, trimming, milling, and binding. This section explains the process of folding and trimming, and how trim sizes are determined in relation to the type of printing press used. Examples of appropriate trim sizes for particular printing presses are provided. Additionally, different binding options and their appropriateness with regards to cost and durability are discussed.

A. TRIMMING

Trimming refers to cutting the paper to its final size. This is an important point to consider because choosing appropriate sizes can considerably decrease your production costs.

Books are always printed on large sheets that contain multiple pages. The printed sheet is then folded 8 or 16 times to produce 16 or 32 pages (back and front). The folded section is called a signature. Figure 8 shows how a signature is folded and how the page order falls into place after folding. The paper will only be cut or “trimmed” to its final size once it is folded into a signature. The signature is cut at the top to disconnect the sheets; it is cut at the sides so the paper edges become rougher, and so that the ink to glue the signature into the spine sets better; this is called milling.



To leave a (small) margin for error and to improve appearance, books are always printed on paper with a slightly larger surface than needed for the book’s layout. The trim size refers to the final size of the paper after excess edges have been cut off. By ensuring that the trim size of your book is maximally adjusted to the sheet size of the paper used by the printer’s press, paper waste is minimized.

Using non-standard book or paper sizes can significantly increase costs. Paper left on the floor of the trimming room is money left on the floor. In fact, your printer will likely resell that paper “waste” for recycling and additional profit.

The most economical trim size can only be determined by the size of the press. Always consult the printer before determining the final trim size of the materials.

B. BINDING

There are four commonly used binding techniques:



i. Saddle stitching

Saddle stitched materials are stapled along the spine. "Saddle" refers to the machine on which books are placed and stitched. Saddle stitching is a suitable binding method for reading materials of up to 96 interior pages. Above 96 pages, the material will "creep" around the stitches and tear. It is important for the wire used to be galvanized to prevent the staples from rusting. Saddle stitching is the cheapest binding technique of all, and it does not require a high level of graphic knowledge. However, the life expectancy of materials that are saddle stitched does not generally surpass one year. Saddle stitching is cost effective for consumable materials, such as short storybooks for very young readers and workbooks. Saddle stitching books that are 96 pages each would cost approximately US\$7/1000 copies if the books are bound in India or Africa.

ii. Perfect binding with hotmelt glue

Perfect binding refers to the process of attaching the text block, consisting of multiple signatures (folded sections), to the spine of the book cover. The signatures are milled and then glued together in the cover with hotmelt glue. This type of binding generally does not last more than a year, as books in trucks and warehouses can get hotter than 60–70 degrees Celsius, when the glue will melt and the books will fall apart. Perfect binding books that are 160 pages each would cost approximately US\$25/1000 copies if the books are bound in India or Africa.

iii. Perfect binding with sewed hotmelt

With this binding technique, the signatures are sewed together and then glued into the spine with hotmelt glue. This is much more expensive since sewing signatures is more labor intensive; it also results in a huge competitive advantage for printers based in countries with low labor costs. This type of binding should last for at least three years. Perfect binding/section sewing books that are 160 pages each would cost approximately US\$35/1000 copies if the books are bound in India or Africa.

iv. Perfect binding with PUR glue

PUR perfect binding involves the same process of milling the signatures and gluing these into the



spine. However, the glue used is PUR glue. PUR is the strongest glue and is available worldwide; all professional printers work with PUR binding. Once PUR glue dries, it is permanent.

PUR has a longer drying period: four hours to two days depending on air humidity and paper humidity. PUR is insensitive to temperature and solvents and different kinds of paper can be combined in one book. PUR maximizes the life expectancy of a book to at least three years and is the preferred binding method for books that see a lot of use such as textbooks, reference books, and longer supplementary materials such as anthologies. Although PUR binding is slightly more costly than regular hotmelt, this is vastly outweighed by its advantages. Perfect binding books with PUR glue that are 160 pages each would cost approximately US\$30/1000 copies if the books are bound in India or Africa.

5 PACKAGING

- a. The textbooks and teacher guides shall be delivered in unused corrugated cartons (boxes) packed and sealed to withstand rough handling. Each carton shall contain forty (40) TBs and 1 TG wrapped and sealed in 0.03 mm thick polyethylene (machine-sealed) or shrink packed using gauge 75 Polyolefin Film (POF) for adequate protection against moisture and water damage.
- b. The carton materials shall have these specifications:

Corrugation: B, C or E (double wall) flute

Burst strength: 14.09 kgs/cm² or 200.4 psi or 1409 kPa all with + 2% tolerance

Joint: Taped with 50.8 mm wide tape with fibre or better. For cartons with overlap joints, the overlap joints shall be fixed by high grade glue and its outside joint shall be reinforced by a 50.8 mm packing tape or better. Tin/staple wires shall not be used to reinforce the joints.

Boxes with textbooks and teacher guides shall be reinforced with at least 12.7 mm wide plastic strap with tin or other appropriate seal as shown in this Section. Supplier may introduce better carton reinforcement, e.g., shrink packing with provision for convenient handling, subject to approval of the Purchaser.

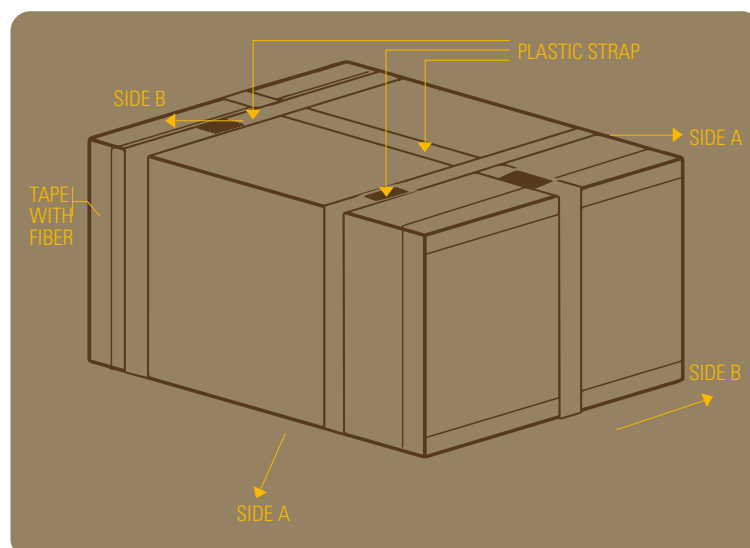
Top, bottom, and flap ceiling: 50.8 mm packing tape or better

Materials used in the manufacture of corrugated boxes: kraft liner board.

Carton Markings: The following information shall be printed in 1 color on the carton in accordance with the specifications and layout furnished herein by the MoE.

1. Title (subject/grade)
2. Number of books in carton
3. International symbols, linear specification, volume, & gross weight
4. MoE logo
5. MoE name and address
6. Supplier's name and address

Packaging Diagram



CONCLUSIONS



Key recommendations for developing reading books for young children are as follows:

- Sans-serif fonts such as Andika and Levenim MT should be used to develop reading books.
- Depending on the grade level, font sizes should be a minimum of 24–26 points (Latin Script) or 32 points (Thai/Arabic Script). Font size is particularly important for children 7 and younger.
- Word and letter spacing affects how children process typographic cues; the spacing after titles, between pictures, and between lines can facilitate better comprehension of a story.
- Saddle stitching is the preferred binding method for supplementary materials because it is the most economical for books under 96 pages total. Perfect binding with PUR glue is more expensive, but it is the most economic and durable option for materials of more than 96 pages.
- Uncoated paper is the most appropriate paper for educational materials. Paper should be at least 70/80 grams. Covers should be at least 170 gsm for workbooks and 250 gsm for textbooks.
- Consider whether paper used is sourced from sustainably managed forestry and the impact of book demand on deforestation and loss of ecologically valuable and biologically diverse habitat.
- Printing methods should be chosen in relation to the scale of the order.
- International competitive bidding procurement is recommended for high volume orders. Large, commercial printers have access to different printing presses, including those that produce huge orders cost-effectively.

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