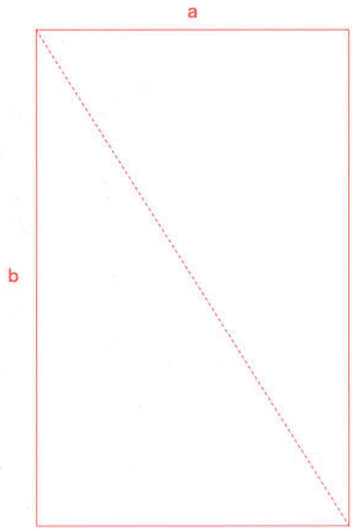
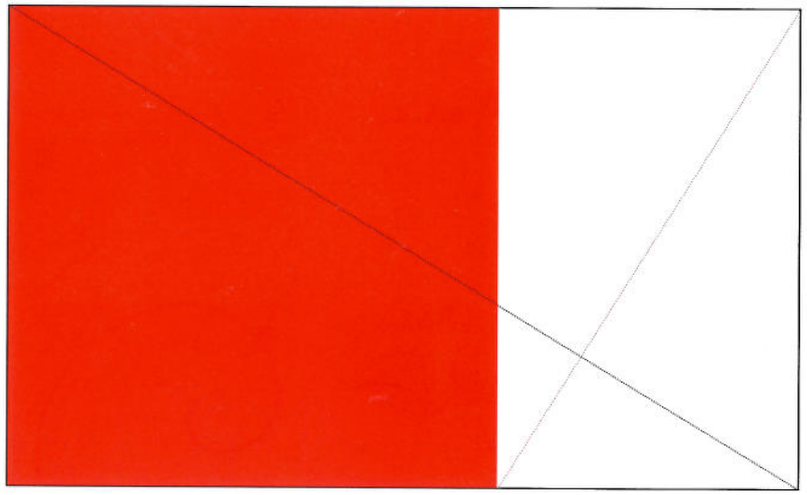
A designer's first consideration is the size and shape of the page. Although practical limitations—particularly economies of paper—often limit the designer's options, it is extremely useful to understand how the proportions we work with have evolved, and then to test your own responses against the received wisdom. Remember that these proportions—like so much else in typography and design in general—are the result of direct observation of, and interaction with, the world around us. Only your own practice and experimentation will give you a feel for what page size is most appropriate for each project.

The golden section
A dominant influence on the sense of proportion in Western art is the golden section. The term 'golden section' describes a relationship that occurs between two numbers when the ratio of the smaller to the larger is the same as the ratio of the larger to the sum of the two. The formula expressing this relationship is
a : b = b : (a+b).
The aspect ratio described by a golden section is 1:1.618.

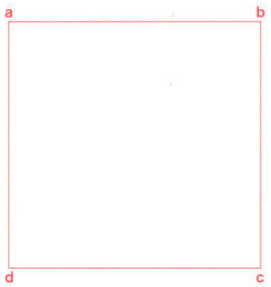
The golden section has existed as a model for proportion since classical times, employed by architects and visual artists in determining composition at all scales, from the shape of a page to the façade of a building. Its relation to contemporary graphic design has become somewhat attenuated (see page 124).



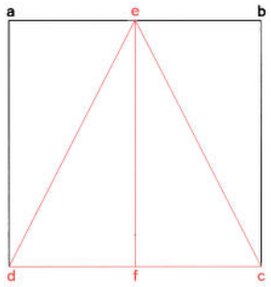


When you remove the square from a golden rectangle, you are left with another golden rectangle.

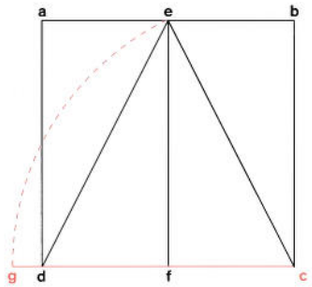
To find the golden section in a square:



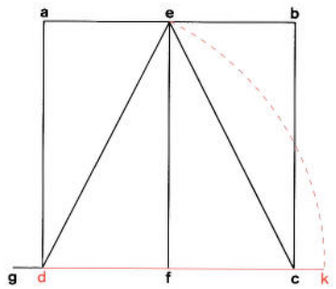
1
Draw the square abcd.



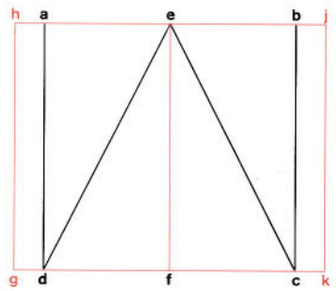
2
Bisect the square with line ef. Draw an isosceles triangle cde.



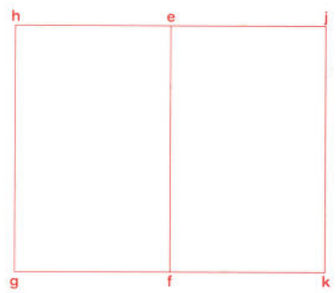
3
Project the line ce along the base of the square, forming line cg.



4
Project the line de along the base of the square, forming line dk.



5
Draw the new rectangles efgh and efkj.



Both rectangles efgh and efkj have the proportions of the golden section; the relationship of eh to gh is the same as the relationship of gh to (eh + gh). Similarly, the relationship of ej to jk is the same as the relationship of jk to (ej + jk)—all are 1:1.618.

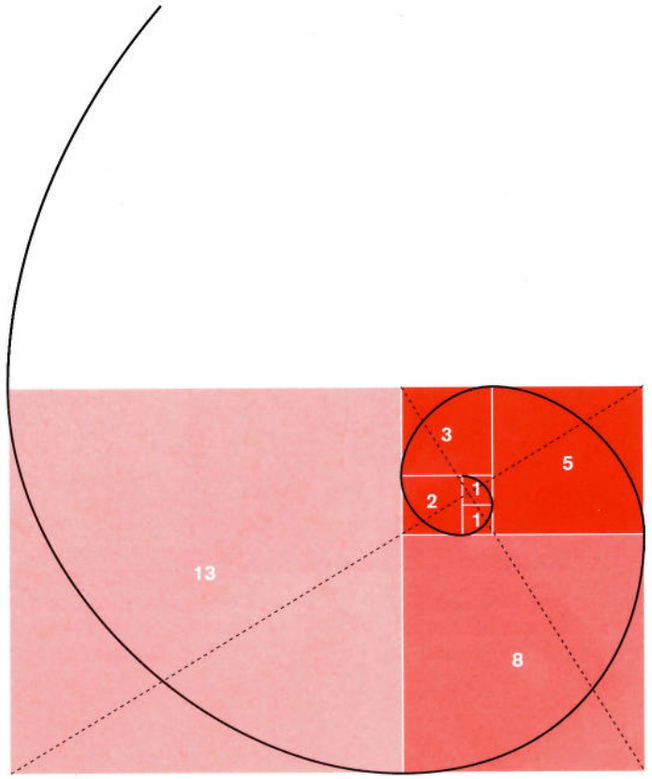
Fibonacci sequence
Another useful model when considering proportions is the Fibonacci sequence. Named for Italian mathematician Leonardo Fibonacci (c. 1170–1240), a Fibonacci sequence describes a sequence in which each number is the sum of the two preceding numbers:

0
1
1 [1+0]
2 [1+1]
3 [1+2]
5 [2+3]
8 [3+5]
13 [5+8]
21 [8+13]
34 [13+21]
...

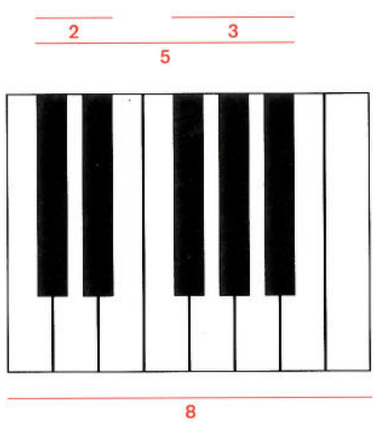
As the numbers in a Fibonacci sequence increase, the proportion between any two numbers very closely approximates the proportion in a golden section (1:1.618). For example, 21:34 approximately equals 1:1.618. Nature is full of examples of the Fibonacci sequence and the golden section, from the intervals of branches on a tree to the shell of a chambered nautilus.

Fibonacci's sequence always began with 1, but the proportion between any two numbers remains constant when the sequence is multiplied:

0	0	0
2	3	4
2	3	4
4	6	8
6	9	12
10	15	20
16	24	32
26	39	52
42	63	84
68	102	136
...	...	...



Above, a spiral describes a Fibonacci series (and the growth of a chambered nautilus). The red rectangle on the upper right approximates a golden section. As each square in the sequence is added, the orientation of the golden section changes from vertical to horizontal.



Left, one of the many examples of a Fibonacci sequence is the musical octave as seen on a piano—eight white keys, five black keys (separated into a group of two and a group of three).

Series of type sizes based on a Fibonacci sequence:

The basic sequence (beginning at 1):
5 pt., 8 pt., 13 pt., 21 pt., 34 pt., and 55 pt.

Aa Aa Aa Aa Aa Aa

The sequence doubled:
6 pt., 10 pt., 16 pt., 26 pt., 42 pt., and 68 pt.

Aa Aa Aa Aa Aa Aa

The sequence tripled:
6 pt., 9 pt., 15 pt., 24 pt., 39 pt., and 63 pt.

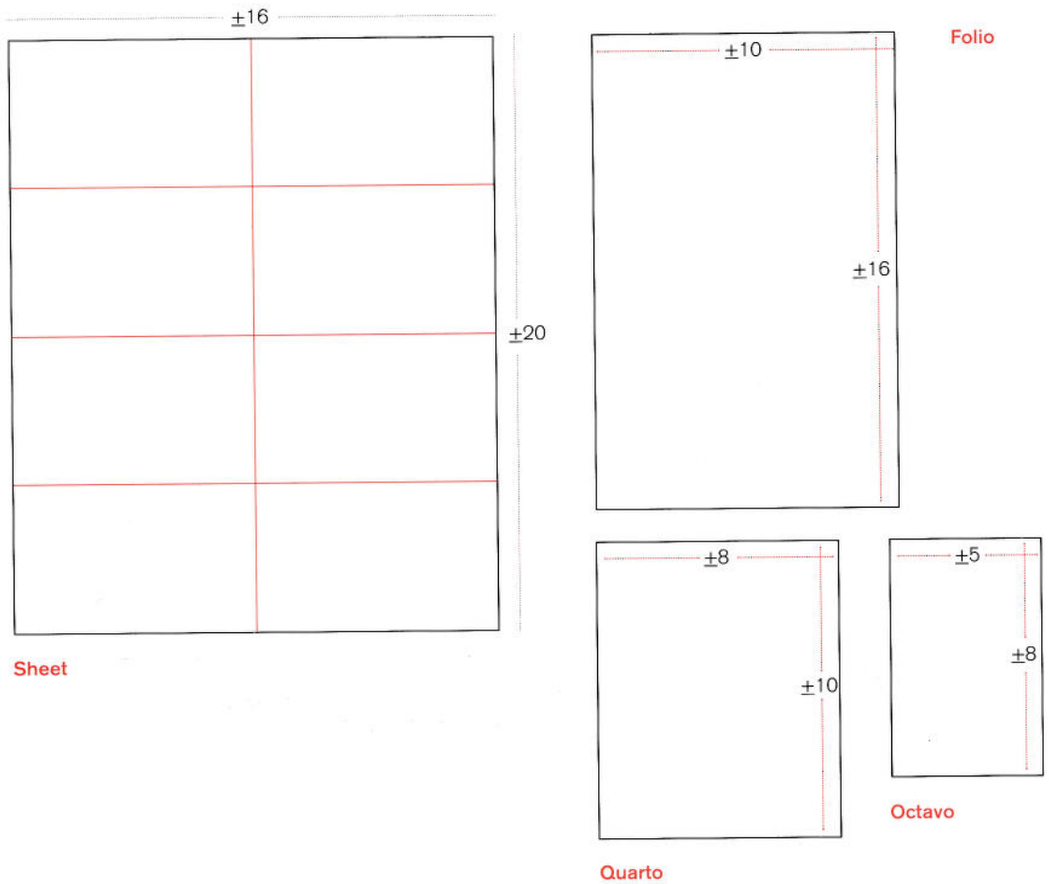
Aa Aa Aa Aa Aa Aa

The sequence quadrupled:
8 pt., 12 pt., 20 pt., 32 pt., 52 pt., and 84 pt.

Aa Aa Aa Aa Aa Aa

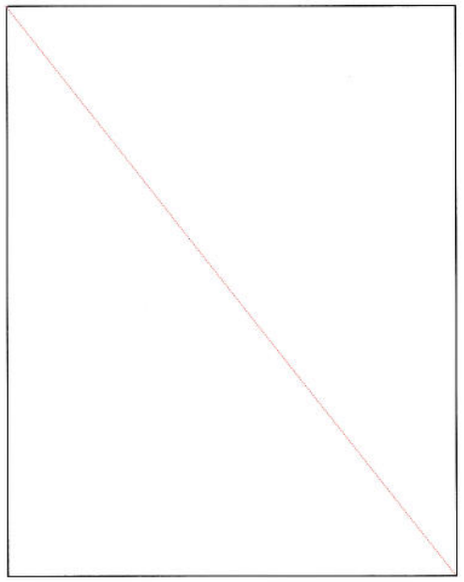
The first and second sequences interlaced:
6 pt., 8 pt., 10 pt., 13 pt., 16 pt., 21 pt., 26 pt., 34 pt., and 42 pt.

Aa Aa Aa Aa Aa Aa Aa Aa Aa

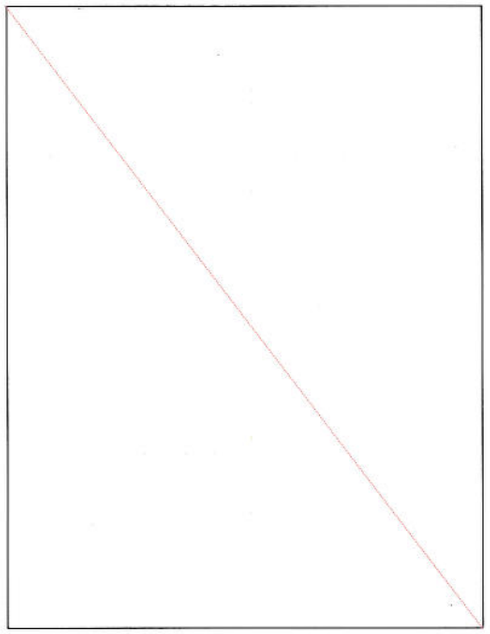


Traditional page sizes
For the first 300 years of printing, the standard printing sheet ran anywhere between 16 x 20" (406 x 508 mm) and 19 x 24" (482 x 609 mm). Page sizes were referred to as folio (half sheet), quarto (quarter sheet), and octavo (eighth sheet). Specific dimensions of these page sizes varied according to the size of the basic sheet. Note that only the folio and octavo sizes approximate the golden section.

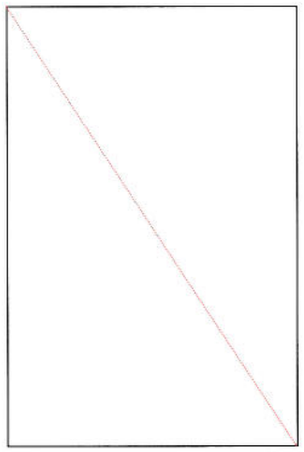
Standard American paper sizes
In American printing (and in those countries dependent upon American suppliers), most paper sizes are based on a page size of 8½ x 11" (216 x 279 mm) or 9 x 12" (229 x 305 mm). As you can see opposite, these sizes derive from the traditional sheet, although they have been modified based on the economies of the current standard printing sheet. There is no longer any relationship to the golden section except for the 5½ x 8½" (140 x 216 mm) sheet.



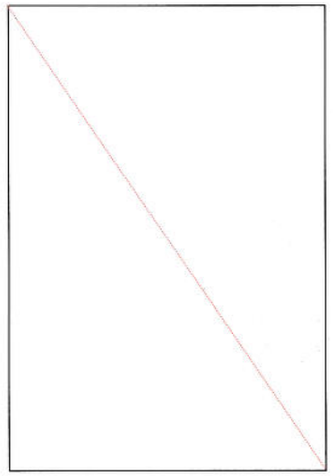
8½ x 11" (216 x 279 mm) sheet
Aspect ratio 1:1.294



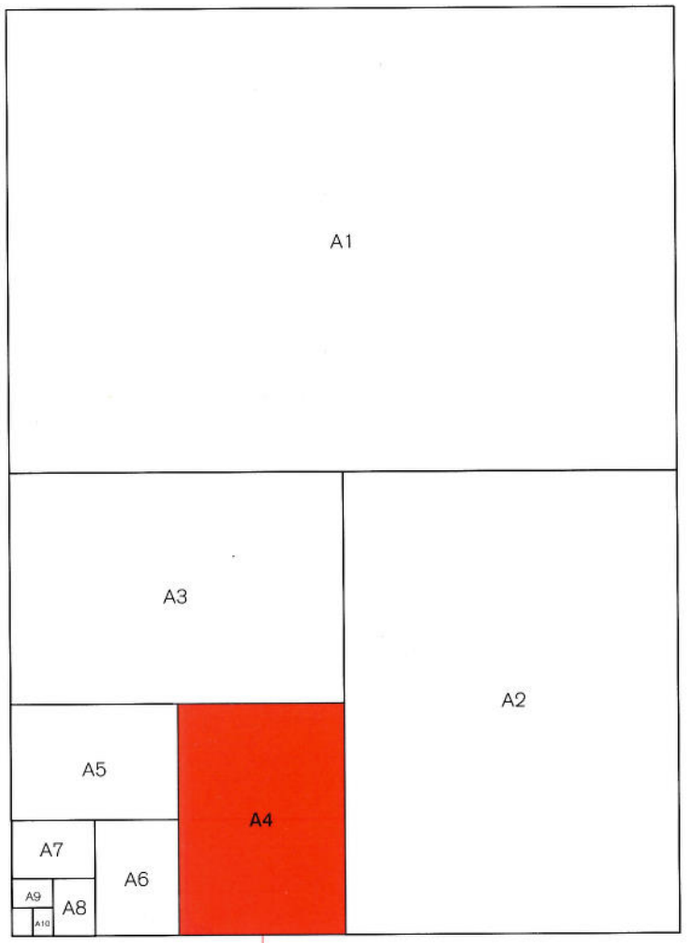
9 x 12" (229 x 355 mm) sheet
Aspect ratio 1:1.333



5½ x 8½" (140 x 216 mm) sheet
Aspect ratio 1:1.545

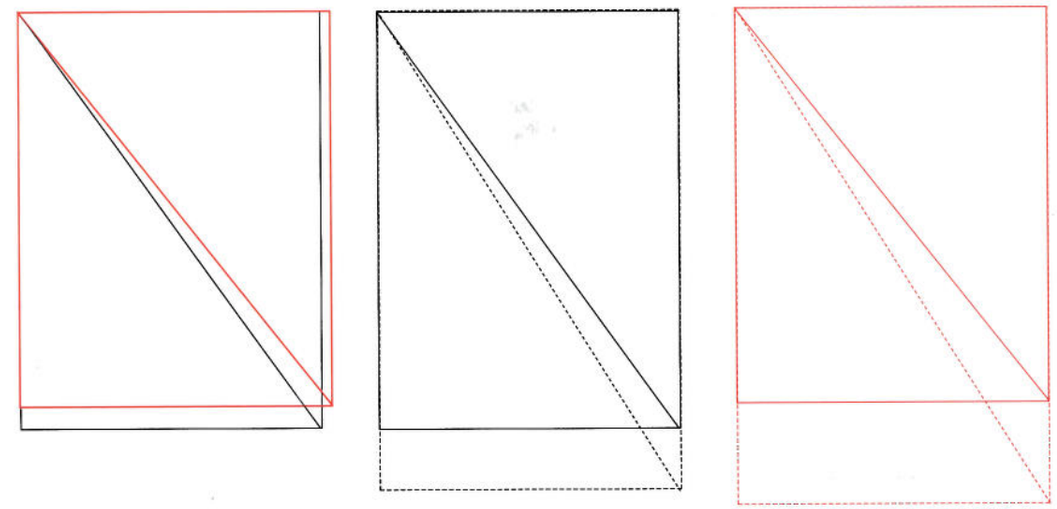


6 x 9" (152 x 229 mm) sheet
Aspect ratio 1:1.5



An A0 sheet, divided into component parts. An A0 sheet measures exactly 1m².

			Approximate inches
A0	=	841 x 1189 mm	33 1/8 x 46 3/4"
A1	=	594 x 841 mm	23 3/8 x 33 1/8"
A2	=	420 x 594 mm	16 1/2 x 23 3/8"
A3	=	297 x 420 mm	11 3/4 x 16 1/2"
A4	**=**	**210 x 297 mm**	**8 1/4 x 11 3/4"**
A5	=	148 x 210 mm	5 7/8 x 8 1/4"
A6	=	105 x 148 mm	4 1/8 x 5 7/8"
A7	=	74 x 105 mm	2 7/8 x 4 1/8"
A8	=	52 x 74 mm	2 x 2 7/8"
A9	=	37 x 52 mm	1 1/2 x 2"
A10	=	26 x 37 mm	1 x 1 1/2"



Relative size and proportion of A4 (black), 8 1/2 x 11" (216 x 279 mm; red), and golden section taken from A4 (dotted black) and 8 1/2 x 11" (216 x 279 mm; dotted red)

European paper: the ISO system
In Europe—and many other parts of the world—paper sizes are based on what is known as the ISO (International Organization for Standardization) system.

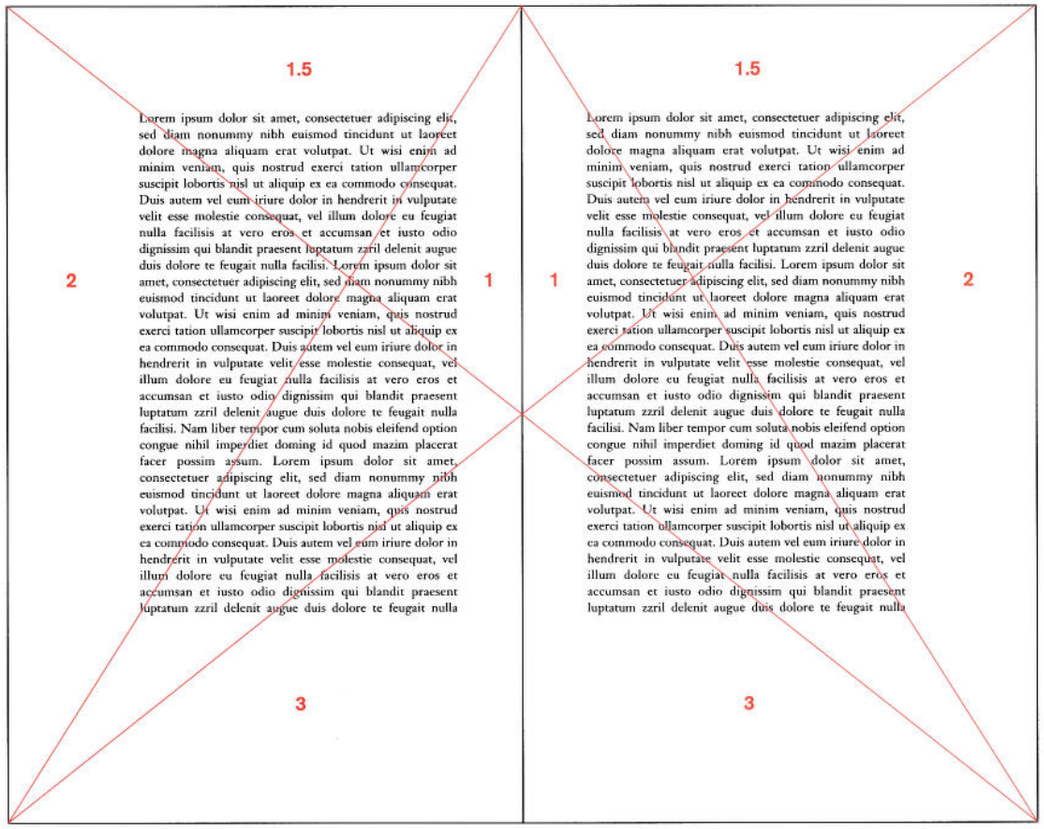
The ISO system was originated at the beginning of the twentieth century by Nobel laureate Wilhelm Ostwald, who proposed an aspect ratio of 1 to the square root of 2 (1.414) as the basis for all printed matter—from postage stamps to oversized posters. The beauty of this ratio is that any sheet of paper trimmed to this format, when cut or folded in half, produces a sheet with exactly the same aspect ratio (1:1.414).

The basic ISO sheet sizes are:

A0 (841 x 1189 mm/33 1/8 x 46 3/4")
B0 (1000 x 1414 mm/39 3/8 x 55 5/8")
C0 (917 x 1297 mm/36 1/8 x 51")

In practical applications, the A series is the basic page size (A4 is the equivalent of the American 8 1/2 x 11" sheet). The B series is often used for books and flyers.

Other than the mathematical elegance of the ISO system and the possible esthetic preference for its proportions, nothing necessarily recommends ISO over American format more than use. And there is nothing to say that only standard sizes are appropriate for any particular task, as we shall see later.



Just as the golden section can be seen as one ideal of proportion, there is also an ideal layout based on the golden section. Shown above, this layout has been considered an ideal since the creation of illuminated books in the Middle Ages, although by the advent of printing, it was a 'custom more honored in the breach than the observance' (Shakespeare).

The rules for this layout are simple:

1
The height of the text field equals the width of the full page.

2
The placement of the text field is determined by the diagonals that describe both the page and the field.

3
The margins at the gutter of the spread (along the spine of the book) define 1 unit of measure. The margin at the top of the page equals 1.5 units. The margins to the outside of the page equal 2 units. And the margin at the bottom equals 3 units.

Note that part of what makes this layout appealing is the tension created by the different margins. Text occupies approximately 40% of the page area.

$8^1/_2$ x 11" (216 x 279 mm)

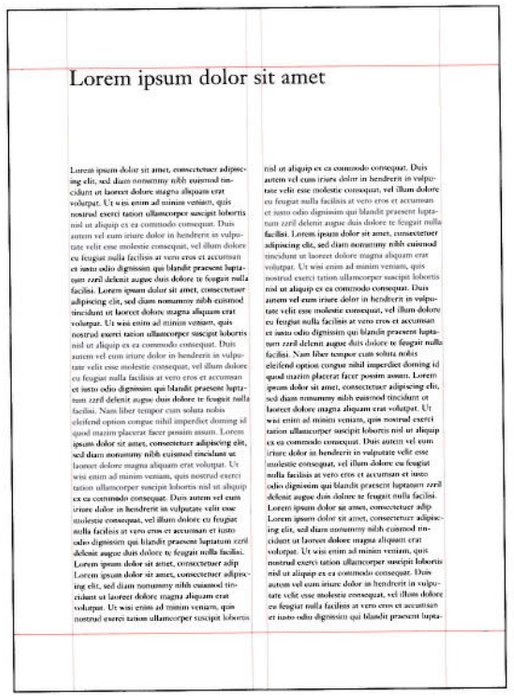
A4

The requirements of contemporary printing take us far away from the medieval ideal. The examples above show how the same amount of type as used in the golden rectangle example would fit on an $8^1/_2$ x 11" (216 x 279 mm) or A4 sheet today. We live in an era when xerography rules, and, as often as not, whatever comes most easily out of the nearest copier or laser printer determines the most appropriate paper sizes—none of which approximates a golden rectangle.

Book printing allows for more freedom in choosing page sizes, but economies of paper typically demand far narrower margins and longer lines than the ancients would have tolerated (look at any textbook). Commerce demands printed pieces that are best suited to sizes and shapes of paper unimagined in 1455 (consider flyers, mailers, brochures, folders, schedules—and on and on). Very few of the messages in these pieces demand the kind of sustained reading best served by a single field of text carefully placed on the page.

So typographers now operate in a world where readability, meaning, clarity, and appropriateness are constantly being tested against the realities of the marketplace and the specific requirements of the page. Our task becomes that of applying what we can of the old principles to contemporary situations.

The use of columnar layouts dates back to Gutenberg's 42-line bible (1455).



2-column layout

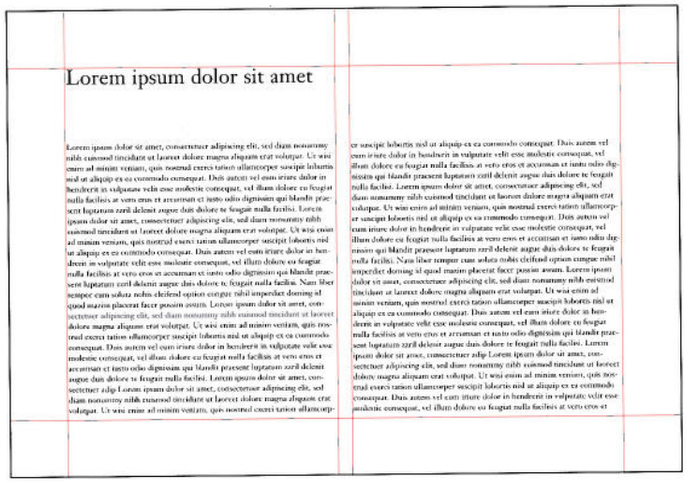
3-column layout

One place to begin is to think of your text area divided into columns—consistent horizontal intervals that allow for more than one field of text per page. Working with columnar layouts helps you maintain a manageable line length and allows white space onto the page in places other than the margins. Keep in mind the dynamic relationship between type size, leading, and line length. Altering the last always affects the first and the second.

5-column layout
Notice how a 5-column layout allows for two fields of text and a third, narrower field for secondary information, such as notes, author profile, etc. The narrower field may in fact be too narrow for any kind of sustained reading.

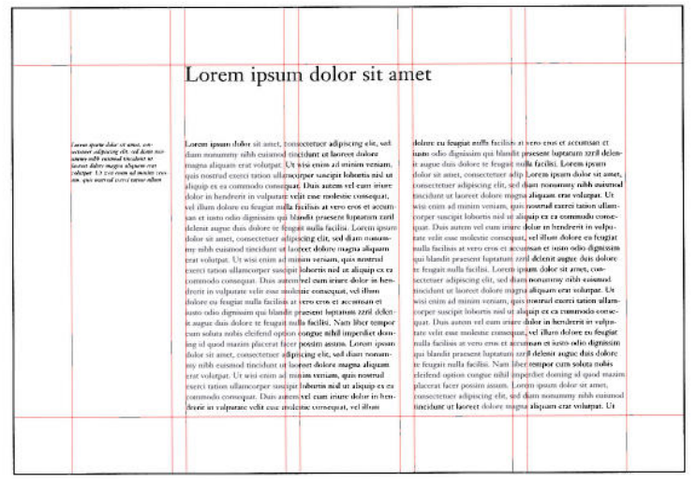
8-column layout
You can see how this application does much the same as a 5-column layout, with slightly narrower fields of text and a wider field for supplemental information. Obviously, many other variations are possible.

Horizontal layouts allow for wider fields of text, which tend to support sustained reading more comfortably than narrower fields.



2-column layout

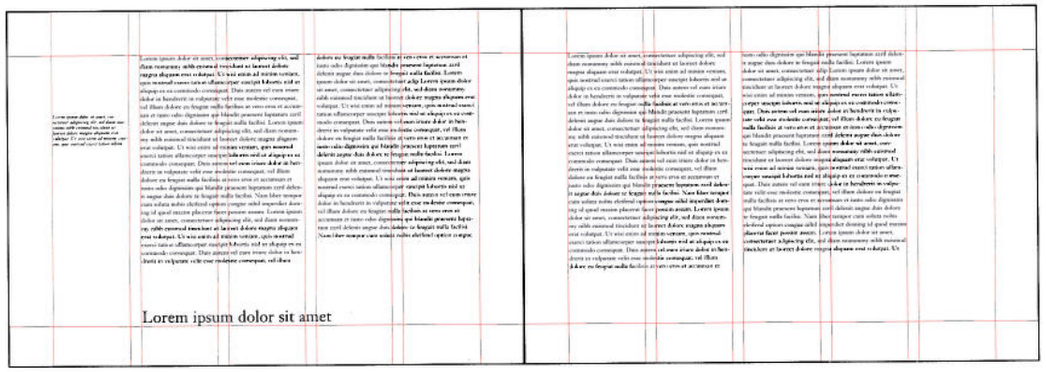
3-column layout

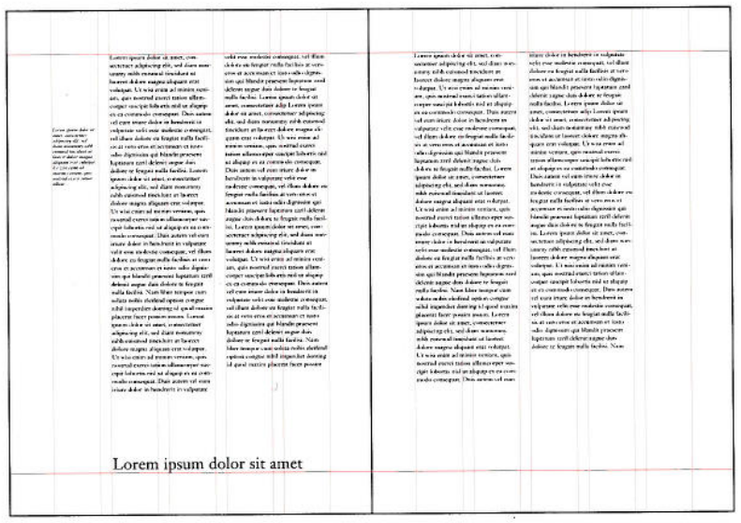


5-column layout

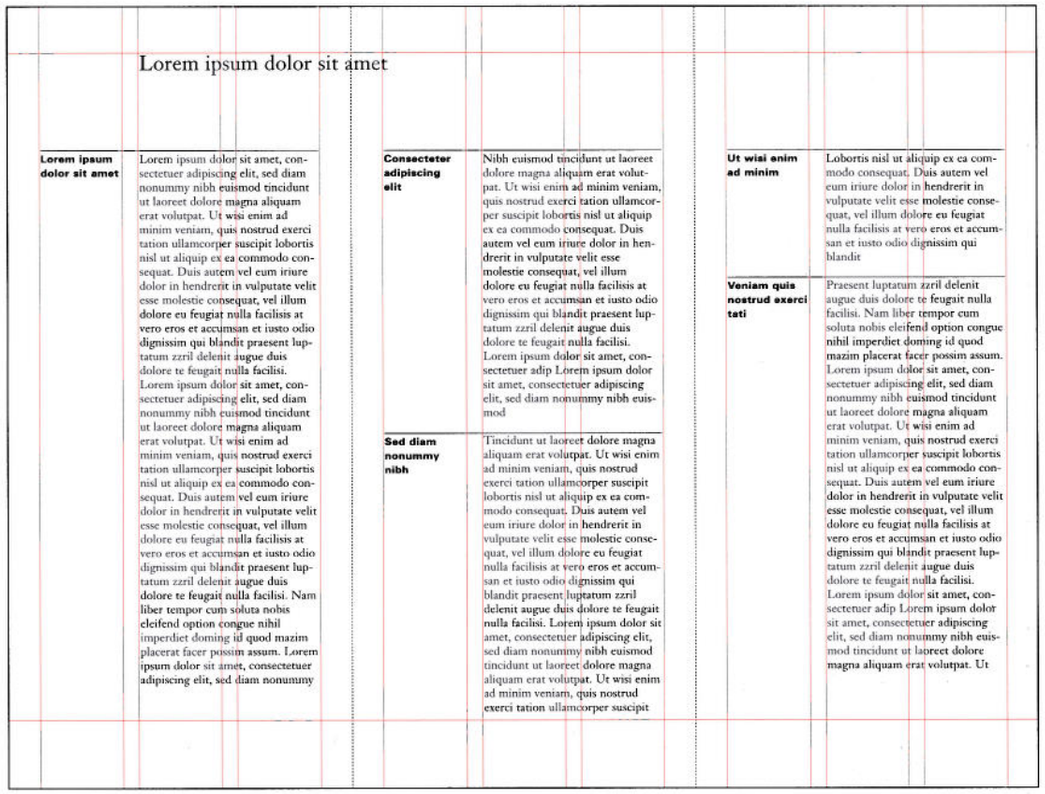
6-column layout

Six columns allow for two wide fields and two narrow fields per page, which can be useful in heavily annotated documents.





Most often, text layouts will involve spreads (two facing pages) and not single sheets. Always keep the spread in mind when you're setting up your page. You can see here how different a spread of horizontal pages (top) feels from a spread of vertical pages (bottom).



Columnar layouts are effective for many different formats. Above, a 3-column layout is applied to each of the three panels on an 8½ x 11" (216 x 279 mm) sheet.

In most circumstances, a designer's first goal is to make material comprehensible to a reader. In other words, you should understand the material well enough to know how someone else needs to read it to make the best sense out of it. This understanding happens on two levels: content and form.

The recipe opposite is a fairly straightforward presentation of the making of an apple tart. With the exception of one or two terms specific to cooking, its content does not require any special knowledge. However, in its form—the manner in which information is set and placed on a page—the process it describes can be made clearer than it appears as plain typescript.

To understand the form, you must first understand the kinds of information the recipe contains and then rank it according to levels of importance, thereby creating a hierarchy. In this recipe there are the following levels of information:
title (1)
subtitles (2)
text (3).
Within the text there are
ingredient lists (3A)
oven temperature instructions (3B)
directions (3C).

Successfully setting this recipe in type requires that you make each of these distinctions clear to the reader. Using some of the kinds of contrast discussed on pages 60–61 will help you express these distinctions.

1 Apple tart

2 The shell

3A 7 tablespoons frozen butter*
1 cup frozen flour*
3 tablespoons ice-cold water*
1 teaspoon cider vinegar
A pinch of kosher salt
* It is important to have these ingredients as cold as possible.

3B Preheat the oven to 400°.

3C In a food processor fitted with a steel blade, combine all the ingredients until they form a solid mass that rises above the blade. You can add extra water by the tablespoon if the mass does not congeal within the first minute. Tiny pieces of butter should still be visible in the dough when it's done. Remove the dough from the bowl and work it quickly into a ball on a lightly floured surface. Cover with plastic wrap and refrigerate for at least half an hour.

After the dough has rested in the refrigerator, roll it out on a lightly floured surface until it forms a circle approximately 13 inches in diameter. Center the circle of dough in a 10-inch tart pan with a removeable bottom. Use your knuckles to make sure that the dough tucks neatly against the edge of the pan and run the rolling pin around the rim to remove the excess. Cover and refrigerate again for at least half an hour.

Line the tart shell with aluminum foil, being careful to cover the edges. Pierce the aluminum and the dough several times with a fork and fill the shell with dried lentils. Bake for 20 minutes. Remove the aluminum and the lentils and continue baking until the shell is golden brown, about 15 minutes more.

2 The apples

3A 6 Granny Smith apples
Juice of one lemon
Cinnamon to taste
Nutmeg to taste

3C Peel, core and halve the apples. Either by hand or with a food processor, cut the apple halves crosswise into thin (less than 1/4") slices. In a large bowl, toss the apples in the lemon juice, cinnamon and nutmeg. Cover and set aside.

2 The pastry cream

3A 1/4 cup sugar
1 tablespoon flour
2 teaspoons cornstarch
1 large egg
1 cup milk
3 tablespoons unsalted butter
1/4 teaspoon vanilla extract

3C Sift the sugar, flour and cornstarch together in a mixing bowl. Add the egg and beat until light. In a heavy-bottomed saucepan, bring the milk to a boil. Stir half the milk into the egg mixture, then pour the whole mixture back into the saucepan. Cook over high heat, stirring constantly, until the center bubbles and the mixture is very thick. Remove from heat and stir in the vanilla and the butter. Pour the pastry cream into a bowl, cover tightly with plastic wrap and refrigerate. (Be sure to press the plastic wrap right onto the cream to prevent a skin from forming.)

2 The assembly and baking

3A 2 tablespoons sugar
8 ounces currant jelly

3B Preheat the oven to 375°.

3C Spread the pastry cream over the bottom of the shell. Arrange the apple slices in a circle around the outer edge of the shell, making sure the slices overlap. When the outer circle is completed, make a smaller circle, overlapping about half of the outer circle. If there's room, make a third circle. Fill the hole in the center with pieces of a few slices--let them stand upright. Cover the tart with a circle of wax paper and bake for 25 minutes. Remove the wax paper and sprinkle the sugar over the apples. Bake uncovered for 5-10 minutes more, until the sugar melts.

Boil the currant jelly until it reduces by one-third. With a pastry brush, paint the top of the tart with the currant glaze. Allow time for the glaze to set and the tart to cool before serving (10 minutes).

Apple tart

The shell

Preheat the oven to 400°.

7 tablespooons frozen butter*
1 cup frozen flour*
3 tablespoons ice-cold water*
1 teaspoon cider vinegar
A pinch of kosher salt
* It is important to have these ingredients as cold as possible.

In a food processor fitted with a steel blade, combine all the ingredients until they form a solid mass that rises above the blade. You can add extra water by the tablespoon if the mass does not congeal within the first minute. Tiny pieces of butter should still be visible in the dough when it's done. Remove the dough from the bowl and work it quickly it into a ball on a lightly floured surface. Cover with plastic wrap and refrigerate for at least half an hour.

After the dough has rested in the refrigerator, roll it out on a lightly floured surface until it forms a circle approximately 13" in diameter. Center the circle of dough in a 10-inch tart pan with a removeable bottom. Use your knuckles to make sure that the dough tucks neatly against the edge of the pan and run the rolling pin around the rim to remove the excess. Cover and refrigerate again for at least half an hour.

Line the tart shell with aluminum foil, being careful to cover the edges. Pierce the aluminum and the dough several times with a fork and fill the shell with dried lentils. Bake for 20 minutes. Remove the aluminum and the lentils and continue baking until the shell is golden brown, about 15 minutes more.

The apples

6 Granny Smith apples
Juice of one lemon
Cinammon to taste
Nutmeg to taste

Peel, core and halve the apples. Either by hand or with a food processor, cut the apple halves crosswise into thin (less than ¼") slices. In a large bowl, toss the appples in the lemon juice, cinammon and nutmeg. Cover and set aside.

The pastry cream

¼ cup sugar
1 tablespoon flour
2 teaspoons cornstarch
1 large egg
1 cup milk
3 tablespoons unsalted butter
¼ teaspoon vanilla extract

Sift the sugar, flour and cornstarch together in a mixing bowl. Add the egg and beat until light. In a heavy-bottomed saucepan, bring the milk to a boil. Stir half the milk into the egg mixture, then pour the whole mixture back into the saucepan. Cook over high heat, stirring constantly, until the center bubbles and the mixture is very thick. Remove from heat and stir in the vanilla and the butter. Pour the pastry cream into a bowl, cover tightly with plastic wrap and refrigerate. (Be sure to press the plastic wrap right onto the cream to prevent a skin from forming.)

The assembly and baking

Preheat the oven to 375°.

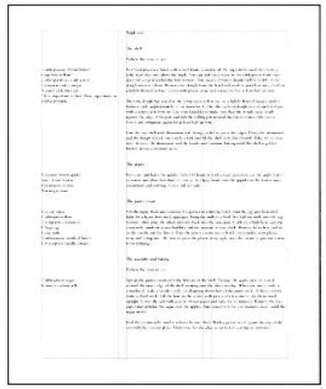
2 tablespoons sugar
8 ounces currant jelly

Spread the pastry cream over the bottom of the shell. Arrange the apple slices in a circle around the outer edge of the shell, making sure the slices overlap. When the outer circle is completed, make a smaller circle, overlapping about half of the outer circle. If there's room, make a third circle. fill the hole in the center with pieces of a few slices—let them stand upright. Cover the tart with a circle of wax paper and bake for 25 minutes. Remove the wax paper and sprinkle the sugar over the apples. Bake uncovered for 5-10 minutes more, until the sugar melts.

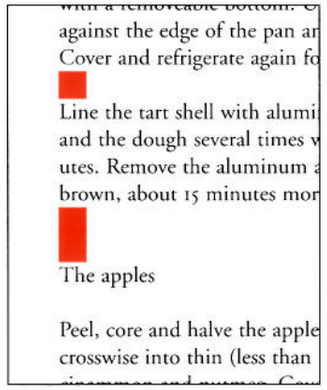
Boil the currant jelly until it reduces by one-third. With a pastry brush, paint the top of the tart with the currant glaze. Allow time for the glaze to set before serving (10 minutes).

Option 1
One typeface, one size throughout

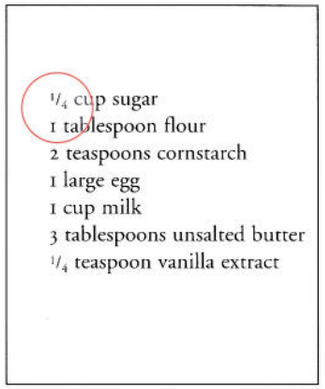
9/11 Adobe Garamond



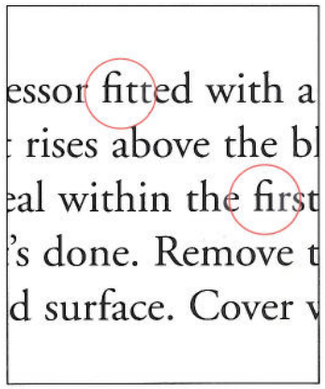
Establishing a format
After analyzing and organizing the content, devise a format that expresses differences within the text. In Option 1 (opposite), all the ingredients are separated from the directions. Because the line length required for easy reading of directions is more or less twice the line length required for a list of ingredients, the area within the margins of the sheet is divided vertically into three intervals, or columns. Ingredients occupy the first column, directions the second and third. Groups of ingredients cross-align with the directions that refer to them.



Establishing a hierarchy
Single line spaces indicate breaks between paragraphs. Double line spaces indicate breaks between sections of text.



Typeface choice
When numbers and fractions occur frequently in the text, choose a typeface with an expert set that includes lowercase numerals and fraction characters. (See page 6 for a brief discussion of lowercase numerals.)



Ligatures
Virtually all text typefaces have ligatures for fi and fl combinations. Some also have ligatures for ff, ffi, and ffl.

Apple tart

The shell

Preheat the oven to 400°.

7 tablespooons frozen butter*
1 cup frozen flour*
3 tablespoons ice-cold water*
1 teaspoon cider vinegar
A pinch of kosher salt
* It is important to have these ingredients as cold as possible.

In a food processor fitted with a steel blade, combine all the ingredients until they form a solid mass that rises above the blade. You can add extra water by the tablespoon if the mass does not congeal within the first minute. Tiny pieces of butter should still be visible in the dough when it's done. Remove the dough from the bowl and work it quickly it into a ball on a lightly floured surface. Cover with plastic wrap and refrigerate for at least half an hour.

After the dough has rested in the refigerator, roll it out on a lightly floured surface until it forms a circle approximately 13" in diameter. Center the circle of dough in a 10-inch tart pan with a removeable bottom. Use your knuckles to make sure that the dough tucks neatly against the edge of the pan and run the rolling pin around the rim to remove the excess. Cover and refrigerate again for at least half an hour.

Line the tart shell with aluminum foil, being careful to cover the edges. Pierce the aluminum and the dough several times with a fork and fill the shell with dried lentils. Bake for 20 minutes. Remove the aluminum and the lentils and continue baking until the shell is golden brown, about 15 minutes more.

The apples

6 Granny Smith apples
Juice of one lemon
Cinammon to taste
Nutmeg to taste

Peel, core and halve the apples. Either by hand or with a food processor, cut the apple halves crosswise into thin (less than ¼") slices. In a large bowl, toss the appples in the lemon juice, cinammon and nutmeg. Cover and set aside.

The pastry cream

¼ cup sugar
1 tablespoon flour
2 teaspoons cornstarch
1 large egg
1 cup milk
3 tablespoons unsalted butter
¼ teaspoon vanilla extract

Sift the sugar, flour and cornstarch together in a mixing bowl. Add the egg and beat until light. In a heavy-bottomed saucepan, bring the milk to a boil. Stir half the milk into the egg mixture, then pour the whole mixture back into the saucepan. Cook over high heat, stirring constantly, until the center bubbles and the mixture is very thick. Remove from heat and stir in the vanilla and the butter. Pour the pastry cream into a bowl, cover tightly with plastic wrap and refrigerate. (Be sure to press the plastic wrap right onto the cream to prevent a skin from forming.)

The assembly and baking

2 tablespoons sugar
8 ounces currant jelly

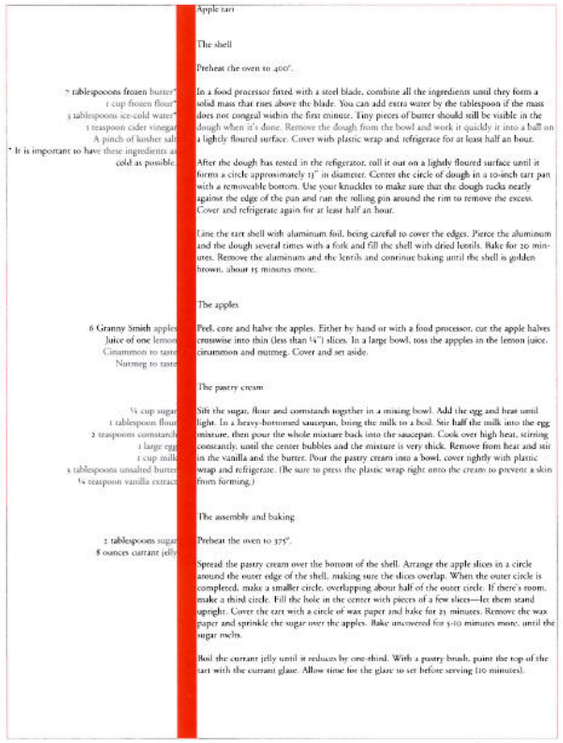
Preheat the oven to 375°.

Spread the pastry cream over the bottom of the shell. Arrange the apple slices in a circle around the outer edge of the shell, making sure the slices overlap. When the outer circle is completed, make a smaller circle, overlapping about half of the outer circle. If there's room, make a third circle. Fill the hole in the center with pieces of a few slices—let them stand upright. Cover the tart with a circle of wax paper and bake for 25 minutes. Remove the wax paper and sprinkle the sugar over the apples. Bake uncovered for 5-10 minutes more, until the sugar melts.

Boil the currant jelly until it reduces by one-third. With a pastry brush, paint the top of the tart with the currant glaze. Allow time for the glaze to set before serving (10 minutes).

Option 2
Type set flush right and flush left

9/11 Adobe Garamond



Reinforcing structure
Setting the ingredients flush right against the gutter between the first and second columns strengthens the formal organization of the page. Keep in mind, setting type flush right causes one to read the shape created by the type before one reads the actual text. Similarly, the counterform created by the gutter between the two kinds of text (ingredients and directions) becomes a dominant, possibly intrusive element on the page.

Apple tart

The shell

Preheat the oven to 400°.

7 tablespooons frozen butter*
1 cup frozen flour*
3 tablespoons ice-cold water*
1 teaspoon cider vinegar
A pinch of kosher salt

* *It is important to have these ingredients as cold as possible.*

In a food processor fitted with a steel blade, combine all the ingredients until they form a solid mass that rises above the blade. You can add extra water by the tablespoon if the mass does not congeal within the first minute. Tiny pieces of butter should still be visible in the dough when it's done. Remove the dough from the bowl and work it quickly it into a ball on a lightly floured surface. Cover with plastic wrap and refrigerate for at least half an hour.

After the dough has rested in the refigerator, roll it out on a lightly floured surface until it forms a circle approximately 13" in diameter. Center the circle of dough in a 10-inch tart pan with a removeable bottom. Use your knuckles to make sure that the dough tucks neatly against the edge of the pan and run the rolling pin around the rim to remove the excess. Cover and refrigerate again for at least half an hour.

Line the tart shell with aluminum foil, being careful to cover the edges. Pierce the aluminum and the dough several times with a fork and fill the shell with dried lentils. Bake for 20 minutes. Remove the aluminum and the lentils and continue baking until the shell is golden brown, about 15 minutes more.

The apples

6 Granny Smith apples
Juice of one lemon
Cinammon to taste
Nutmeg to taste

Peel, core and halve the apples. Either by hand or with a food processor, cut the apple halves crosswise into thin (less than 1/4") slices. In a large bowl, toss the appples in the lemon juice, cinammon and nutmeg. Cover and set aside.

The pastry cream

1/4 cup sugar
1 tablespoon flour
2 teaspoons cornstarch
1 large egg
1 cup milk
3 tablespoons unsalted butter
1/4 teaspoon vanilla extract

Sift the sugar, flour and cornstarch together in a mixing bowl. Add the egg and beat until light. In a heavy-bottomed saucepan, bring the milk to a boil. Stir half the milk into the egg mixture, then pour the whole mixture back into the saucepan. Cook over high heat, stirring constantly, until the center bubbles and the mixture is very thick. Remove from heat and stir in the vanilla and the butter. Pour the pastry cream into a bowl, cover tightly with plastic wrap and refrigerate. (Be sure to press the plastic wrap right onto the cream to prevent a skin from forming.)

The assembly and baking

2 tablespoons sugar
8 ounces currant jelly

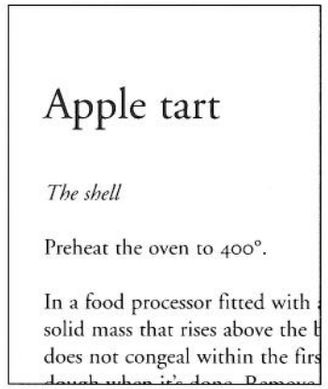
Preheat the oven to 375°.

Spread the pastry cream over the bottom of the shell. Arrange the apple slices in a circle around the outer edge of the shell, making sure the slices overlap. When the outer circle is completed, make a smaller circle, overlapping about half of the outer circle. If there's room, make a third circle. Fill the hole in the center with pieces of a few slices—let them stand upright. Cover the tart with a circle of wax paper and bake for 25 minutes. Remove the wax paper and sprinkle the sugar over the apples. Bake uncovered for 5-10 minutes more, until the sugar melts.

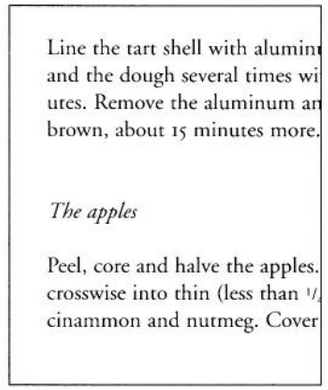
Boil the currant jelly until it reduces by one-third. With a pastry brush, paint the top of the tart with the currant glaze. Allow time for the glaze to set before serving (10 minutes).

Option 3
Italic added, two sizes

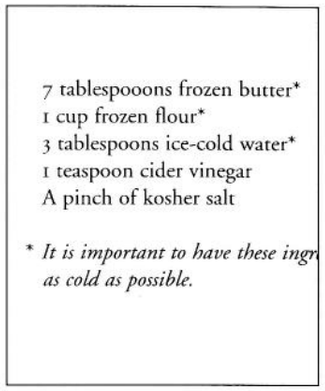
9/11 and 18/22 Adobe Garamond



Title treatment
Enlarging the size of the title not only reinforces hierarchy, but also provides an unambiguous starting point for reading.



Secondary heads
Using italic for secondary heads reinforces their place in the overall hierarchy already indicated by the additional line space.



Italic within the text
Italic within the list of ingredients indicates information that affects the items in use. Note also how the exdented asterisk (see page 102) strengthens the left margin of the type. Compare with Option 1.

Apple tart

The shell

Preheat the oven to 400°.

7 tablespooons frozen butter*
1 cup frozen flour*
3 tablespoons ice-cold water*
1 teaspoon cider vinegar
A pinch of kosher salt

* *It is important to have these ingredients as cold as possible.*

In a food processor fitted with a steel blade, combine all the ingredients until they form a solid mass that rises above the blade. You can add extra water by the tablespoon if the mass does not congeal within the first minute. Tiny pieces of butter should still be visible in the dough when it's done. Remove the dough from the bowl and work it quickly it into a ball on a lightly floured surface. Cover with plastic wrap and refrigerate for at least half an hour.

After the dough has rested in the refigerator, roll it out on a lightly floured surface until it forms a circle approximately 13" in diameter. Center the circle of dough in a 10-inch tart pan with a removeable bottom. Use your knuckles to make sure that the dough tucks neatly against the edge of the pan and run the rolling pin around the rim to remove the excess. Cover and refrigerate again for at least half an hour.

Line the tart shell with aluminum foil, being careful to cover the edges. Pierce the aluminum and the dough several times with a fork and fill the shell with dried lentils. Bake for 20 minutes. Remove the aluminum and the lentils and continue baking until the shell is golden brown, about 15 minutes more.

The apples

6 Granny Smith apples
Juice of one lemon
Cinammon to taste
Nutmeg to taste

Peel, core and halve the apples. Either by hand or with a food processor, cut the apple halves crosswise into thin (less than 1/4") slices. In a large bowl, toss the appples in the lemon juice, cinammon and nutmeg. Cover and set aside.

The pastry cream

3/4 cup sugar
1 tablespoon flour
2 teaspoons cornstarch
1 large egg
1 cup milk
3 tablespoons unsalted butter
1/4 teaspoon vanilla extract

Sift the sugar, flour and cornstarch together in a mixing bowl. Add the egg and beat until light. In a heavy-bottomed saucepan, bring the milk to a boil. Stir half the milk into the egg mixture, then pour the whole mixture back into the saucepan. Cook over high heat, stirring constantly, until the center bubbles and the mixture is very thick. Remove from heat and stir in the vanilla and the butter. Pour the pastry cream into a bowl, cover tightly with plastic wrap and refrigerate. (Be sure to press the plastic wrap right onto the cream to prevent a skin from forming.)

The assembly and baking

2 tablespoons sugar
8 ounces currant jelly

Preheat the oven to 375°.

Spread the pastry cream over the bottom of the shell. Arrange the apple slices in a circle around the outer edge of the shell, making sure the slices overlap. When the outer circle is completed, make a smaller circle, overlapping about half of the outer circle. If there's room, make a third circle. Fill the hole in the center with pieces of a few slices—let them stand upright. Cover the tart with a circle of wax paper and bake for 25 minutes. Remove the wax paper and sprinkle the sugar over the apples. Bake uncovered for 5-10 minutes more, until the sugar melts.

Boil the currant jelly until it reduces by one-third. With a pastry brush, paint the top of the tart with the currant glaze. Allow time for the glaze to set before serving (10 minutes).

Option 4
Two typefaces, two sizes

9/11 and 18/22 Adobe Garamond
8/11 Univers 75

with a removeable bottom.
against the edge of the pan
Cover and refrigerate again

Line the tart shell with alun
and the dough several times
utes. Remove the aluminum
brown, about 15 minutes m

The apples

Peel, core and halve the app
crosswise into thin (less tha
cinammon and nutmeg. Co

Title treatment
Introducing a sans serif boldface for secondary heads increases contrast and adds color to the page.

Apple tart

The shell

7 tablespooons frozen butter*
1 cup frozen flour*
3 tablespoons ice-cold water*
1 teaspoon cider vinegar
A pinch of kosher salt

* *It is important to have these ingredients as cold as possible.*

In a food processor fitted with a steel blade, combine all the ingredients until they form a solid mass that rises above the blade. You can add extra water by the tablespoon if the mass does not congeal within the first minute. Tiny pieces of butter should still be visible in the dough when it's done. Remove the dough from the bowl and work it quickly it into a ball on a lightly floured surface. Cover with plastic wrap and refrigerate for at least half an hour.

After the dough has rested in the refigerator, roll it out on a lightly floured surface until it forms a circle approximately 13" in diameter. Center the circle of dough in a 10-inch tart pan with a removeable bottom. Use your knuckles to make sure that the dough tucks neatly against the edge of the pan and run the rolling pin around the rim to remove the excess. Cover and refrigerate again for at least half an hour.

Line the tart shell with aluminum foil, being careful to cover the edges. Pierce the aluminum and the dough several times with a fork and fill the shell with dried lentils. Bake for 20 minutes. Remove the aluminum and the lentils and continue baking until the shell is golden brown, about 15 minutes more.

Preheat the oven to 400°.

The apples

6 Granny Smith apples
Juice of one lemon
Cinammon to taste
Nutmeg to taste

Peel, core and halve the apples. Either by hand or with a food processor, cut the apple halves crosswise into thin (less than ¼") slices. In a large bowl, toss the apples in the lemon juice, cinammon and nutmeg. Cover and set aside.

The pastry cream

¼ cup sugar
1 tablespoon flour
2 teaspoons cornstarch
1 large egg
1 cup milk
3 tablespoons unsalted butter
¼ teaspoon vanilla extract

Sift the sugar, flour and cornstarch together in a mixing bowl. Add the egg and beat until light. In a heavy-bottomed saucepan, bring the milk to a boil. Stir half the milk into the egg mixture, then pour the whole mixture back into the saucepan. Cook over high heat, stirring constantly, until the center bubbles and the mixture is very thick. Remove from heat and stir in the vanilla and the butter. Pour the pastry cream into a bowl, cover tightly with plastic wrap and refrigerate. (Be sure to press the plastic wrap right onto the cream to prevent a skin from forming.)

The assembly and baking

2 tablespoons sugar
8 ounces currant jelly

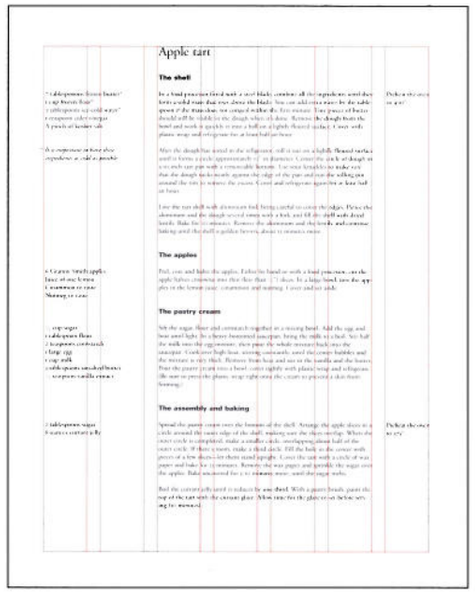
Spread the pastry cream over the bottom of the shell. Arrange the apple slices in a circle around the outer edge of the shell, making sure the slices overlap. When the outer circle is completed, make a smaller circle, overlapping about half of the outer circle. If there's room, make a third circle. Fill the hole in the center with pieces of a few slices—let them stand upright. Cover the tart with a circle of wax paper and bake for 25 minutes. Remove the wax paper and sprinkle the sugar over the apples. Bake uncovered for 5-10 minutes more, until the sugar melts.

Boil the currant jelly until it reduces by one-third. With a pastry brush, paint the top of the tart with the currant glaze. Allow time for the glaze to set before serving (10 minutes).

Preheat the oven to 375°.

Option 5
7-column format

9/11 and 18/22 Adobe Garamond
8/11 Univers 75



Revised format
Dividing the type area into seven columns provides a new, separate column for oven settings, creates a narrower (and easier to read) line length for instructions, and increases white space on the page.

- **Set instructional text of your choosing in a way that makes the different levels of copy clearly distinguishable from each other. The goal is to find out how much differentiation you feel is necessary. All the text must fit on an 8½ x 11" (216 x 279 mm) or A4 sheet.**

  Be sure to document several options within one approach.

The five small steps shown on these preceding pages provide a point of departure. As you work on your sketches, explore the use of several typefaces (possibly one for each level of text), the addition of rules to indicate sections, size changes, etc. The aim of the process is to sensitize yourself to the options available within this simple problem. You will also start to sense what is and is not appropriate to—even necessary for—the material at hand. Finally, keep alert to what makes the page feel like yours and no one else's—an expression of your typographic sensibility.

Designers often encounter typographic problems that are not based on narrative or instructions ('This happened, then this happened' or 'Do this, then do this'). Timetables, financial statements, lists of dates, weather charts—many kinds of information design—often need to accommodate reading in two directions simultaneously. Setting up columns and rows that read clearly requires a thorough understanding of working with tabs.

The timetable opposite (actual size: 6" or 152 mm square) demonstrates many of the problems with overdesigning tabular matter. Extraneous rules, both vertical and horizontal, have been imposed on the basic typographic organization to correct for unfortunate first choices about type size, leading, and placement.

SATURDAYS AND SUNDAYS

INBOUND	1204	1208	1212	1216	1220	1224
READ DOWN	A.M.	A.M.	P.M.	P.M.	P.M.	P.M.
Dep: Haverhill	7 15	10 15	1 15	4 15	7 15	10 15
Bradford	7 17	10 17	1 17	4 17	7 17	10 17
Lawrence	7 26	10 26	1 26	4 26	7 26	10 26
Andover	7 31	10 31	1 31	4 31	7 31	10 31
Ballardvale	f7 36	f10 36	f1 36	f4 36	f7 36	f10 36
North Wilmington	f7 42	f10 42	f1 42	f4 42	f7 42	f10 42
Reading	7 51	10 51	1 51	4 51	7 51	10 51
Wakefield	7 57	10 57	1 57	4 57	7 57	10 57
Greenwood	f8 00	f11 00	f2 00	f5 00	f8 00	f11 00
Melrose Highlands	8 02	11 02	2 02	5 02	8 02	11 02
Melrose/Cedar Park	f8 04	f11 04	f2 04	f5 04	f8 04	f11 04
Wyoming Hill	f8 06	f11 06	f2 06	f5 06	f8 06	f11 06
Malden Center	8 09	11 09	2 09	5 09	8 09	11 09
Arr: North Station	8 19	11 19	2 19	5 19	8 19	11 19

OUTBOUND	1205	1209	1213	1217	1221	1225
READ DOWN	A.M.	A.M.	P.M.	P.M.	P.M.	P.M.
Dep: North Station	8 45	11 45	2 45	5 45	8 45	11 30
Malden Center	8 55	11 55	2 55	5 55	8 55	11 40
Wyoming Hill	f8 58	f11 58	f2 58	f5 58	f8 58	f11 43
Melrose/Cedar Park	f9 00	f12 00	f3 00	f6 00	f9 00	f11 45
Melrose Highlands	9 02	12 02	3 02	6 02	9 02	11 47
Greenwood	f9 04	f12 04	f3 04	f6 04	f9 04	f11 49
Wakefield	9 08	12 08	3 08	6 08	9 08	11 53
Reading	9 14	12 14	3 14	6 14	9 14	11 59
North Wilmington	f9 22	f12 22	f3 22	f6 22	f9 22	f12 07
Ballardvale	f9 28	f12 28	f3 28	f6 28	f9 28	f12 13
Andover	9 33	12 33	3 33	6 33	9 33	12 18
Lawrence	9 38	12 38	3 38	6 38	9 38	12 23
Bradford	9 47	12 47	3 47	6 47	9 47	12 32
Arr: Haverhill	9 49	12 49	3 49	6 49	9 49	12 34

HOLIDAYS

July 4 and New Year's Eve contact Customer Service for service updates at 617-222-3200

SATURDAY SERVICE
Presidents' Day
Independence Day
New Year's Day
f stops only on request

SUNDAY SERVICE
Memorial Day • Labor Day
Thanksgiving Day • Christmas Day

Uppercase numerals all have the same set width, in part so that they will align vertically in columns of figures. Lowercase numerals do not.

Saturdays and Sundays

Inbound	1204	1208	1212	1216	1220	1224
Dep: Haverhill	7:15	10:15	1:15	4:15	7:15	10:15
Bradford	7:17	10:17	1:17	4:17	7:17	10:17
Lawrence	7:26	10:26	1:26	4:26	7:26	10:26
Andover	7:31	10:31	1:31	4:31	7:31	10:31
Ballardvale	7:36*	10:36*	1:36*	4:36*	7:36*	10:36*
North Wilmington	7:42*	10:42*	1:42*	4:42*	7:42*	10:42*
Reading	7:51	10:51	1:51	4:51	7:51	10:51
Wakefield	7:57	10:57	1:57	4:57	7:57	10:57
Greenwood	8:00*	11:00*	2:00*	5:00*	8:00*	11:00*
Melrose Highlands	8:02	11:02	2:02	5:02	8:02	11:02
Melrose/Cedar Park	8:04*	11:04*	2:04*	5:04*	8:04*	11:04*
Wyoming Hill	8:06*	11:06*	2:06*	5:06*	8:06*	11:06*
Malden Center	8:09	11:09	2:09	5:09	8:09	11:09
Arr: North Station	8:19	11:19	2:19	5:19	8:19	11:19
Outbound	1205	1209	1213	1217	1221	1225
Dep: North Station	8:45	11:45	2:45	5:45	8:45	11:30
Malden Center	8:55	11:55	2:55	5:55	8:55	11:40
Wyoming Hill	8:58*	11:58*	2:58*	5:58*	8:58*	11:43*
Melrose/Cedar Park	9:00*	12:00*	3:00*	6:00*	9:00*	11:45*
Melrose Highlands	9:02	12:02	3:02	6:02	9:02	11:47
Greenwood	9:04*	12:04*	3:04*	6:04*	9:04*	11:49*
Wakefield	9:08	12:08	3:08	6:08	9:08	11:53
Reading	9:14	12:14	3:14	6:14	9:14	11:59
North Wilmington	9:22*	12:22*	3:22*	6:22*	9:22*	12:07*
Ballardvale	9:28*	12:28*	3:28*	6:28*	9:28*	12:13*
Andover	9:33	12:33	3:33	6:33	9:33	12:18
Lawrence	9:38	12:38	3:38	6:38	9:38	12:23
Bradford	9:47	12:47	3:47	6:47	9:47	12:32
Arr: Haverhill	9:49	12:49	3:49	6:49	9:49	12:34

Holidays

Weekend service — Presidents' Day • Independence Day • New Year's Day • Memorial Day • Labor Day • Thanksgiving Day • Christmas Day

July 4 and New Year's Eve — contact Customer Service for service updates at 617-222-3200

* stops only on request

As with the previous exercise, the first step is to set all the material in one size of one typeface in order to uncover the internal logic of the information.

Here a sans serif typeface (Univers 45) is chosen because the relatively large x-height and open counters aid reading at smaller sizes. The horizontal rules used on the original schedule have been replaced by line spaces. Vertical rules and the 'frame' of the original have been eliminated altogether. Centered type has been reformatted to flush left/ragged right. The term 'READ DOWN' has been eliminated and the 'f' before some entries in the schedule has been replaced with an asterisk after.

From this point, the goal is to reinforce the two directions of reading (across and down) without introducing elements that supersede the information itself.

Saturdays and Sundays

Inbound	**1204**	**1208**	**1212**	**1216**	**1220**	**1224**
Dep: Haverhill	7:15	10:15	**1:15**	**4:15**	**7:15**	**10:15**
Bradford	7:17	10:17	**1:17**	**4:17**	**7:17**	**10:17**
Lawrence	7:26	10:26	**1:26**	**4:26**	**7:26**	**10:26**
Andover	7:31	10:31	**1:31**	**4:31**	**7:31**	**10:31**
Ballardvale	7:36*	10:36*	**1:36***	**4:36***	**7:36***	**10:36***
North Wilmington	7:42*	10:42*	**1:42***	**4:42***	**7:42***	**10:42***
Reading	7:51	10:51	**1:51**	**4:51**	**7:51**	**10:51**
Wakefield	7:57	10:57	**1:57**	**4:57**	**7:57**	**10:57**
Greenwood	8:00*	11:00*	**2:00***	**5:00***	**8:00***	**11:00***
Melrose Highlands	8:02	11:02	**2:02**	**5:02**	**8:02**	**11:02**
Melrose/Cedar Park	8:04*	11:04*	**2:04***	**5:04***	**8:04***	**11:04***
Wyoming Hill	8:06*	11:06*	**2:06***	**5:06***	**8:06***	**11:06***
Malden Center	8:09	11:09	**2:09**	**5:09**	**8:09**	**11:09**
Arr: North Station	8:19	11:19	**2:19**	**5:19**	**8:19**	**11:19**

Outbound	**1205**	**1209**	**1213**	**1217**	**1221**	**1225**
Dep: North Station	8:45	11:45	**2:45**	**5:45**	**8:45**	**11:30**
Malden Center	8:55	11:55	**2:55**	**5:55**	**8:55**	**11:40**
Wyoming Hill	8:58*	11:58*	**2:58***	**5:58***	**8:58***	**11:43***
Melrose/Cedar Park	9:00*	**12:00***	**3:00***	**6:00***	**9:00***	**11:45***
Melrose Highlands	9:02	**12:02**	**3:02**	**6:02**	**9:02**	**11:47**
Greenwood	9:04*	**12:04***	**3:04***	**6:04***	**9:04***	**11:49***
Wakefield	9:08	**12:08**	**3:08**	**6:08**	**9:08**	**11:53**
Reading	9:14	**12:14**	**3:14**	**6:14**	**9:14**	**11:59**
North Wilmington	9:22*	**12:22***	**3:22***	**6:22***	**9:22***	12:07*
Ballardvale	9:28*	**12:28***	**3:28***	**6:28***	**9:28***	12:13*
Andover	9:33	**12:33**	**3:33**	**6:33**	**9:33**	12:18
Lawrence	9:38	**12:38**	**3:38**	**6:38**	**9:38**	12:23
Bradford	9:47	**12:47**	**3:47**	**6:47**	**9:47**	12:32
Arr: Haverhill	9:49	**12:49**	**3:49**	**6:49**	**9:49**	12:34

Holidays

Weekend service Presidents' Day • Independence Day • New Year's Day • Memorial Day • Labor Day • Thanksgiving Day • Christmas Day

July 4 and New Year's Eve contact Customer Service for service updates at 617-222-3200

*** stops only on request**

Two weights of boldface (Univers 65 and 75) are added both to indicate hierarchy (days of the week, trains' numbers and directions, ends of the line) and to distinguish morning and afternoon/evening times at a glance.

This latter use of boldface is more an issue with 12-hour American time systems than with 24-hour European systems. Still, the distinction between before and after noon can be useful for quick orientation.

SATURDAYS AND SUNDAYS

Inbound	**1204**	**1208**	**1212**	**1216**	**1220**	**1224**
Dep: Haverhill	7:15	10:15	**1:15**	**4:15**	**7:15**	**10:15**
Bradford	7:17	10:17	**1:17**	**4:17**	**7:17**	**10:17**
Lawrence	7:26	10:26	**1:26**	**4:26**	**7:26**	**10:26**
Andover	7:31	10:31	**1:31**	**4:31**	**7:31**	**10:31**
Ballardvale	7:36*	10:36*	**1:36***	**4:36***	**7:36***	**10:36***
North Wilmington	7:42*	10:42*	**1:42***	**4:42***	**7:42***	**10:42***
Reading	7:51	10:51	**1:51**	**4:51**	**7:51**	**10:51**
Wakefield	7:57	10:57	**1:57**	**4:57**	**7:57**	**10:57**
Greenwood	8:00*	11:00*	**2:00***	**5:00***	**8:00***	**11:00***
Melrose Highlands	8:02	11:02	**2:02**	**5:02**	**8:02**	**11:02**
Melrose/Cedar Park	8:04*	11:04*	**2:04***	**5:04***	**8:04***	**11:04***
Wyoming Hill	8:06*	11:06*	**2:06***	**5:06***	**8:06***	**11:06***
Malden Center	8:09	11:09	**2:09**	**5:09**	**8:09**	**11:09**
Arr: North Station	8:19	11:19	**2:19**	**5:19**	**8:19**	**11:19**

Outbound	**1205**	**1209**	**1213**	**1217**	**1221**	**1225**
Dep: North Station	8:45	11:45	**2:45**	**5:45**	**8:45**	**11:30**
Malden Center	8:55	11:55	**2:55**	**5:55**	**8:55**	**11:40**
Wyoming Hill	8:58*	11:58*	**2:58***	**5:58***	**8:58***	**11:43***
Melrose/Cedar Park	9:00*	**12:00***	**3:00***	**6:00***	**9:00***	**11:45***
Melrose Highlands	9:02	**12:02**	**3:02**	**6:02**	**9:02**	**11:47**
Greenwood	9:04*	**12:04***	**3:04***	**6:04***	**9:04***	**11:49***
Wakefield	9:08	**12:08**	**3:08**	**6:08**	**9:08**	**11:53**
Reading	9:14	**12:14**	**3:14**	**6:14**	**9:14**	**11:59**
North Wilmington	9:22*	**12:22***	**3:22***	**6:22***	**9:22***	12:07*
Ballardvale	9:28*	**12:28***	**3:28***	**6:28***	**9:28***	12:13*
Andover	9:33	**12:33**	**3:33**	**6:33**	**9:33**	12:18
Lawrence	9:38	**12:38**	**3:38**	**6:38**	**9:38**	12:23
Bradford	9:47	**12:47**	**3:47**	**6:47**	**9:47**	12:32
Arr: Haverhill	9:49	**12:49**	**3:49**	**6:49**	**9:49**	12:34

HOLIDAYS

Weekend service Presidents' Day • Independence Day • New Year's Day • Memorial Day • Labor Day • Thanksgiving Day • Christmas Day

July 4 and New Year's Eve contact Customer Service for service updates at 617-222-3200

*** stops only on request**

Hierarchy is reinforced by introducing rules to signify major breaks in information. Major heads are reversed out of wide black rules, secondary heads follow hairlines.

SATURDAYS AND SUNDAYS

Inbound	1204	1208	1212	1216	1220	1224
Dep: Haverhill	7:15	10:15	1:15	4:15	7:15	10:15
Bradford	7:17	10:17	1:17	4:17	7:17	10:17
Lawrence	7:26	10:26	1:26	4:26	7:26	10:26
Andover	7:31	10:31	1:31	4:31	7:31	10:31
Ballardvale	7:36*	10:36*	1:36*	4:36*	7:36*	10:36*
North Wilmington	7:42*	10:42*	1:42*	4:42*	7:42*	10:42*
Reading	7:51	10:51	1:51	4:51	7:51	10:51
Wakefield	7:57	10:57	1:57	4:57	7:57	10:57
Greenwood	8:00*	11:00*	2:00*	5:00*	8:00*	11:00*
Melrose Highlands	8:02	11:02	2:02	5:02	8:02	11:02
Melrose/Cedar Park	8:04*	11:04*	2:04*	5:04*	8:04*	11:04*
Wyoming Hill	8:06*	11:06*	2:06*	5:06*	8:06*	11:06*
Malden Center	8:09	11:09	2:09	5:09	8:09	11:09
Arr: North Station	8:19	11:19	2:19	5:19	8:19	11:19

Outbound	1205	1209	1213	1217	1221	1225
Dep: North Station	8:45	11:45	2:45	5:45	8:45	11:30
Malden Center	8:55	11:55	2:55	5:55	8:55	11:40
Wyoming Hill	8:58*	11:58*	2:58*	5:58*	8:58*	11:43*
Melrose/Cedar Park	9:00*	12:00*	3:00*	6:00*	9:00*	11:45*
Melrose Highlands	9:02	12:02	3:02	6:02	9:02	11:47
Greenwood	9:04*	12:04*	3:04*	6:04*	9:04*	11:49*
Wakefield	9:08	12:08	3:08	6:08	9:08	11:53
Reading	9:14	12:14	3:14	6:14	9:14	11:59
North Wilmington	9:22*	12:22*	3:22*	6:22*	9:22*	12:07*
Ballardvale	9:28*	12:28*	3:28*	6:28*	9:28*	12:13*
Andover	9:33	12:33	3:33	6:33	9:33	12:18
Lawrence	9:38	12:38	3:38	6:38	9:38	12:23
Bradford	9:47	12:47	3:47	6:47	9:47	12:32
Arr: Haverhill	9:49	12:49	3:49	6:49	9:49	12:34

HOLIDAYS

Weekend service	Presidents' Day • Independence Day • New Year's Day • Memorial Day • Labor Day • Thanksgiving Day • Christmas Day
July 4 and New Year's Eve	contact Customer Service for service updates at 617-222-3200

*** stops only on request**

The space between columns of times already supports vertical reading. Screened wide horizontal rules, added between alternating lines of arrival/departure times, aids readability across the timetable.

SATURDAYS AND SUNDAYS

Inbound	1204	1208	1212	1216	1220	1224
Dep: Haverhill	7:15	10:15	1:15	4:15	7:15	10:15
Bradford	7:17	10:17	1:17	4:17	7:17	10:17
Lawrence	7:26	10:26	1:26	4:26	7:26	10:26
Andover	7:31	10:31	1:31	4:31	7:31	10:31
Ballardvale	7:36*	10:36*	1:36*	4:36*	7:36*	10:36*
North Wilmington	7:42*	10:42*	1:42*	4:42*	7:42*	10:42*
Reading	7:51	10:51	1:51	4:51	7:51	10:51
Wakefield	7:57	10:57	1:57	4:57	7:57	10:57
Greenwood	8:00*	11:00*	2:00*	5:00*	8:00*	11:00*
Melrose Highlands	8:02	11:02	2:02	5:02	8:02	11:02
Melrose/Cedar Park	8:04*	11:04*	2:04*	5:04*	8:04*	11:04*
Wyoming Hill	8:06*	11:06*	2:06*	5:06*	8:06*	11:06*
Malden Center	8:09	11:09	2:09	5:09	8:09	11:09
Arr: North Station	8:19	11:19	2:19	5:19	8:19	11:19

Outbound	1205	1209	1213	1217	1221	1225
Dep: North Station	8:45	11:45	2:45	5:45	8:45	11:30
Malden Center	8:55	11:55	2:55	5:55	8:55	11:40
Wyoming Hill	8:58*	11:58*	2:58*	5:58*	8:58*	11:43*
Melrose/Cedar Park	9:00*	12:00*	3:00*	6:00*	9:00*	11:45*
Melrose Highlands	9:02	12:02	3:02	6:02	9:02	11:47
Greenwood	9:04*	12:04*	3:04*	6:04*	9:04*	11:49*
Wakefield	9:08	12:08	3:08	6:08	9:08	11:53
Reading	9:14	12:14	3:14	6:14	9:14	11:59
North Wilmington	9:22*	12:22*	3:22*	6:22*	9:22*	12:07*
Ballardvale	9:28*	12:28*	3:28*	6:28*	9:28*	12:13*
Andover	9:33	12:33	3:33	6:33	9:33	12:18
Lawrence	9:38	12:38	3:38	6:38	9:38	12:23
Bradford	9:47	12:47	3:47	6:47	9:47	12:32
Arr: Haverhill	9:49	12:49	3:49	6:49	9:49	12:34

HOLIDAYS

Weekend service	Presidents' Day • Independence Day • New Year's Day • Memorial Day • Labor Day • Thanksgiving Day • Christmas Day
July 4 and New Year's Eve	contact Customer Service for service updates at 617-222-3200

*** stops only on request**

A second color reinforces existing organization both by highlighting primary and secondary information and by calling attention to exceptions to the regular schedule. The hairline rule signifying outbound trains (rendered redundant by the use of color) is removed.

- **Redesign an existing piece of tabular information. Pay particular attention to ease of use. Organize the type to make both readings of the message—horizontal and vertical—as clear as possible.**