

```
1 <!DOCTYPE html>
2 <html lang="fr">
3 <head>
4   <meta charset="UTF-8">
5   <meta name="viewport" content="width=device-width, initial-scale=1.0">
6   <title>Présentation Interactive - Nuances de Gris</title>
7
8   <!-- Bibliothèques CSS -->
9   <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/reveal.js/dist/reveal.css">
10  <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/6.4.0/css/all.min.css">
11  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm@shoelace-style/shoelace@2.0.0/dist/themes/light.css">
12  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/highlight.js@11.7.0/styles/github.css">
13
14 <style>
15   /* Style de base avec design en nuances de gris */
16   :root {
17     /* Variables pour le thème clair */
18     --color-bg: #fff;
19     --color-text: #333;
20     --color-border: #555;
21     --color-highlight: #888;
22     --color-accent: #444;
23     --color-accent-light: #ccc;
24     --color-disabled: #bbb;
25     --color-hover: #e9e9e9;
26     --color-active: #ddd;
27     --color-secondary: #777;
28     --shadow-sm: 0 2px 4px rgba(0,0,0,0.1);
29     --shadow-md: 0 4px 8px rgba(0,0,0,0.15);
30     --border-radius: 4px;
31     --transition-speed: 0.3s;
32
33     /* Variables pour le responsive */
34     --vw: 1vw;
35     --vh: 1vh;
36     --font-size-base: calc(0.8rem + 0.5vw);
37     --border-width: calc(0.1vw);
38   }
39
40   /* Variables pour le thème sombre */
41   [data-theme="dark"] {
42     --color-bg: #222;
43     --color-text: #f2f2f2;
44     --color-border: #666;
45     --color-highlight: #999;
46     --color-accent: #aaa;
47     --color-accent-light: #444;
48     --color-disabled: #555;
49     --color-hover: #333;
50     --color-active: #444;
51     --color-secondary: #888;
52   }
53
54   /* Réinitialisation et base */
55   * {
56     margin: 0;
57     padding: 0;
58     box-sizing: border-box;
59   }
60
61   html {
62     font-size: 16px;
63     scroll-behavior: smooth;
64   }
65
66   body {
67     width: 100%;
68     height: 100vh;
69     font-family: 'Arial', sans-serif;
70     font-size: var(--font-size-base);
71     color: var(--color-text);
72     background-color: var(--color-bg);
73     overflow: hidden;
74     transition: background-color var(--transition-speed), color var(--transition-speed);
75   }
76
77   /* Styles pour l'accessibilité */
78   .sr-only {
79     position: absolute;
80     width: 1px;
81     height: 1px;
82     padding: 0;
83     margin: -1px;
84     overflow: hidden;
85     clip: rect(0, 0, 0, 0);
86     white-space: nowrap;
87     border: 0;
88   }
89
90   button:focus,
91   [role="button"]:focus,
92   input:focus {
93     outline: 2px solid var(--color-accent);
94     outline-offset: 2px;
95   }
96
97   /* Conteneur principal */
98   .main-container {
99     width: 100vw;
100    height: 100vh;
101    display: flex;
102    flex-direction: column;
103    position: relative;
104  }
```

```
105  
106 /* Barre de progression globale */  
107 .progress-bar-container {  
108     position: fixed;  
109     top: 0;  
110     left: 0;  
111     width: 100%;  
112     height: 4px;  
113     background-color: var(--color-accent-light);  
114     z-index: 1000;  
115 }  
116  
117 .progress-bar {  
118     height: 100%;  
119     background-color: var(--color-accent);  
120     width: 0;  
121     transition: width 0.2s ease;  
122 }  
123  
124 /* Mini-carte des diapositives */  
125 .slide-map {  
126     position: fixed;  
127     bottom: 20px;  
128     right: 20px;  
129     background: rgba(255,255,255,0.8);  
130     border: 1px solid var(--color-border);  
131     border-radius: var(--border-radius);  
132     padding: 5px;  
133     display: flex;  
134     gap: 3px;  
135     z-index: 1000;  
136     box-shadow: var(--shadow-sm);  
137     transform: translateY(120%);  
138     transition: transform 0.3s ease;  
139 }  
140  
141 .main-container:hover .slide-map {  
142     transform: translateY(0);  
143 }  
144  
145 .slide-map-item {  
146     width: 12px;  
147     height: 4px;  
148     background: var(--color-accent-light);  
149     border-radius: 1px;  
150     cursor: pointer;  
151 }  
152  
153 .slide-map-item.active {  
154     background: var(--color-accent);  
155     height: 8px;  
156 }  
157  
158 /* Bandeau supérieur */  
159 .top-banner {  
160     width: 100%;  
161     height: 10vh;  
162     display: flex;  
163     justify-content: space-between;  
164     align-items: center;  
165     border-bottom: var(--border-width) solid var(--color-border);  
166     transition: transform var(--transition-speed) ease;  
167     padding: 0 2vw;  
168     background-color: var(--color-bg);  
169     z-index: 100;  
170 }  
171  
172 /* Bandeau inférieur */  
173 .bottom-banner {  
174     width: 100%;  
175     height: 10vh;  
176     display: flex;  
177     justify-content: space-between;  
178     align-items: center;  
179     border-top: var(--border-width) solid var(--color-border);  
180     transition: transform var(--transition-speed) ease;  
181     padding: 0 2vw;  
182     background-color: var(--color-bg);  
183     z-index: 100;  
184 }  
185  
186 /* Mode bandeaux cachés */  
187 .hide-banners .top-banner {  
188     transform: translateY(-100%);  
189 }  
190  
191 .hide-banners .bottom-banner {  
192     transform: translateY(100%);  
193 }  
194  
195 .hide-banners .slides-container {  
196     height: 100vh;  
197 }  
198  
199 /* Navigation flottante quand les bandeaux sont cachés */  
200 .floating-nav {  
201     position: fixed;  
202     bottom: 2vh;  
203     left: 50%;  
204     transform: translateX(-50%);  
205     display: flex;  
206     justify-content: center;  
207     align-items: center;  
208     background: rgba(255,255,255,0.8);  
209     padding: 1vh 2vw;
```

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210 border-radius: 1vh;
211 border: var(--border-width) solid var(--color-border);
212 z-index: 1000;
213 opacity: 0;
214 transition: opacity var(--transition-speed) ease;
215 box-shadow: var(--shadow-sm);
216 pointer-events: none;
217 backdrop-filter: blur(4px);
218 }
219
220 [data-theme="dark"] .floating-nav {
221   background: rgba(50,50,50,0.8);
222 }
223
224 .hide-banners .floating-nav {
225   opacity: 1;
226   pointer-events: all;
227 }
228
229 /* Conteneurs des zones du bandeau */
230 .top-left, .top-right {
231   width: 30%;
232   display: flex;
233   align-items: center;
234   gap: 10px;
235 }
236
237 .top-left {
238   justify-content: flex-start;
239 }
240
241 .top-right {
242   justify-content: flex-end;
243 }
244
245 .top-center {
246   width: 40%;
247   text-align: center;
248   font-weight: bold;
249   font-size: calc(1.2 * var(--font-size-base));
250 }
251
252 .bottom-left, .bottom-right {
253   width: 30%;
254   display: flex;
255   align-items: center;
256   gap: 10px;
257 }
258
259 .bottom-center {
260   width: 40%;
261   text-align: center;
262   display: flex;
263   justify-content: center;
264   align-items: center;
265 }
266
267 .bottom-right {
268   text-align: right;
269   justify-content: flex-end;
270 }
271
272 /* Style pour les boutons d'icône */
273 .icon-button {
274   display: flex;
275   justify-content: center;
276   align-items: center;
277   width: calc(3.5 * var(--vw));
278   height: calc(3.5 * var(--vh));
279   border: var(--border-width) solid var(--color-border);
280   background: var(--color-bg);
281   cursor: pointer;
282   font-size: calc(1.1 * var(--font-size-base));
283   border-radius: calc(0.5 * var(--vw));
284   margin: 0 0.5vw;
285   transition: all 0.2s ease;
286   color: var(--color-text);
287 }
288
289 .icon-button:hover {
290   background: var(--color-hover);
291 }
292
293 .icon-button.active {
294   background: var(--color-active);
295 }
296
297 /* Boutons de fonction */
298 .function-buttons {
299   position: absolute;
300   top: 11vh;
301   right: 2vw;
302   z-index: 100;
303   display: flex;
304   flex-direction: column;
305   gap: 1vh;
306 }
307
308 /* Style du panneau sommaire déplacé à droite */
309 .summary-panel {
310   position: absolute;
311   top: 11vh;
312   right: 2vw;
313   width: 25vw;
314   max-width: 400px;
```

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315 background: var(--color-bg);
316 border: var(--border-width) solid var(--color-border);
317 padding: 1.5vh 1.5vw;
318 z-index: 1000;
319 display: none;
320 max-height: 70vh;
321 overflow-y: auto;
322 box-shadow: var(--shadow-md);
323 border-radius: var(--border-radius);
324 }
325
326 .summary-title {
327   font-weight: bold;
328   font-size: calc(1.1 * var(--font-size-base));
329   margin-bottom: 1vh;
330   text-align: center;
331   border-bottom: var(--border-width) solid var(--color-border);
332   padding-bottom: 0.5vh;
333 }
334
335 .summary-item {
336   padding: 0.8vh 0.5vw;
337   margin-bottom: 0.5vh;
338   cursor: pointer;
339   border-bottom: 1px dotted var(--color-accent-light);
340   font-size: var(--font-size-base);
341   transition: background-color 0.2s;
342   border-radius: 3px;
343 }
344
345 .summary-item:hover {
346   background-color: var(--color-hover);
347 }
348
349 .summary-item.current {
350   background-color: var(--color-accent-light);
351   font-weight: bold;
352 }
353
354 /* Zone du diaporama */
355 .slides-container {
356   width: 80%;
357   height: 80vh;
358   margin: 0 auto;
359   display: flex;
360   align-items: center;
361   justify-content: center;
362   position: relative;
363   transition: height var(--transition-speed) ease;
364 }
365
366 /* Boutons de navigation repositionnés */
367 .nav-button {
368   display: flex;
369   justify-content: center;
370   align-items: center;
371   padding: 0.5vh 1vw;
372   border: var(--border-width) solid var(--color-border);
373   background: var(--color-bg);
374   cursor: pointer;
375   margin: 0 1vw;
376   font-size: calc(1.2 * var(--font-size-base));
377   border-radius: var(--border-radius);
378   transition: background-color 0.2s, color 0.2s;
379 }
380
381 .nav-button:hover:not(.inactive) {
382   background-color: var(--color-hover);
383 }
384
385 /* Style pour les boutons inactifs */
386 .nav-button.inactive {
387   opacity: 0.3;
388   cursor: default;
389 }
390
391 /* Styles pour les diapositives */
392 .slide {
393   width: 100%;
394   height: 100%;
395   border: var(--border-width) solid var(--color-border);
396   display: flex;
397   flex-direction: column;
398   position: absolute;
399   top: 0;
400   left: 0;
401   opacity: 0;
402   transition: opacity 0.5s ease-in-out, transform 0.5s ease-in-out;
403   transform: translateX(20px);
404   pointer-events: none;
405   background-color: var(--color-bg);
406 }
407
408 .slide.active {
409   opacity: 1;
410   z-index: 10;
411   pointer-events: all;
412   transform: translateX(0);
413 }
414
415 .slide.prev {
416   transform: translateX(-20px);
417 }
418
419 .slide-title {
```

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420 height: 10%;  
421 border-bottom: var(--border-width) solid var(--color-border);  
422 display: flex;  
423 align-items: center;  
424 justify-content: center;  
425 font-weight: bold;  
426 font-size: calc(1.1 * var(--font-size-base));  
427 text-align: center;  
428 padding: 0 2vw;  
429 position: relative;  
430 }  
431  
/* Compteur de diapositives dans le titre */  
.slide-counter-title {  
    position: absolute;  
    right: 10px;  
    font-size: 0.8em;  
    opacity: 0.7;  
}  
439  
.slide-content {  
    height: 90%;  
    display: flex;  
    flex-wrap: wrap;  
    position: relative;  
}  
446  
/* Bouton d'expansion de section */  
.expand-section-button {  
    position: absolute;  
    top: 0.5vh;  
    right: 0.5vw;  
    width: 2.5vw;  
    height: 2.5vh;  
    border: 1px solid var(--color-border);  
    background: var(--color-bg);  
    display: flex;  
    align-items: center;  
    justify-content: center;  
    border-radius: 0.3vw;  
    cursor: pointer;  
    font-size: calc(0.8 * var(--font-size-base));  
    z-index: 5;  
    opacity: 0.7;  
    transition: opacity 0.2s ease;  
}  
466  
.expand-section-button:hover {  
    opacity: 1;  
}  
470  
/* Section container pour positionner le bouton d'expansion */  
.section-container {  
    position: relative;  
    width: 100%;  
    height: 100%;  
}  
476  
/* Style pour le modal qui affiche une section en plein écran */  
.section-modal {  
    position: fixed;  
    top: 0;  
    left: 0;  
    width: 100vw;  
    height: 100vh;  
    background-color: rgba(0,0,0,0.8);  
    display: none;  
    justify-content: center;  
    align-items: center;  
    z-index: 2000;  
}  
491  
.section-modal-content {  
    width: 80vw;  
    height: 80vh;  
    background-color: var(--color-bg);  
    border: var(--border-width) solid var(--color-border);  
    display: flex;  
    flex-direction: column;  
    padding: 2vh 2vw;  
    position: relative;  
    border-radius: var(--border-radius);  
    box-shadow: var(--shadow-md);  
}  
504  
.section-modal-title {  
    font-weight: bold;  
    font-size: calc(1.2 * var(--font-size-base));  
    margin-bottom: 2vh;  
    text-align: center;  
    padding-bottom: 1vh;  
    border-bottom: 1px solid var(--color-border);  
}  
513  
.section-modal-body {  
    flex-grow: 1;  
    display: flex;  
    flex-direction: column;  
    align-items: flex-start;  
    justify-content: flex-start;  
    font-size: calc(1.1 * var(--font-size-base));  
    padding: 2vh 2vw;  
    overflow: auto;  
}  
524
```

```
525 .close-modal-button {
526   position: absolute;
527   top: 1vh;
528   right: 1vw;
529   width: 3vw;
530   height: 3vh;
531   border: 1px solid var(--color-border);
532   background: var(--color-bg);
533   display: flex;
534   align-items: center;
535   justify-content: center;
536   border-radius: 0.3vw;
537   cursor: pointer;
538   font-size: calc(1.1 * var(--font-size-base));
539 }
540
541 /* Nouveau style pour les titres de section */
542 .section-title {
543   font-weight: bold;
544   align-self: flex-start;
545   width: 100%;
546   padding: 0.5vh 0.5vw;
547   margin-bottom: 1vh;
548   border-bottom: 1px dotted var(--color-accent);
549   font-size: var(--font-size-base);
550   display: flex;
551   align-items: center;
552   gap: 8px;
553 }
554
555 .section-content {
556   display: flex;
557   flex-direction: column;
558   align-items: flex-start;
559   justify-content: flex-start;
560   flex-grow: 1;
561   width: 100%;
562   font-size: var(--font-size-base);
563   overflow: auto;
564   padding: 0 0.5vw;
565 }
566
567 /* Styles pour les éléments interactifs */
568 .interactive-element {
569   margin-bottom: 1.5vh;
570   width: 100%;
571 }
572
573 /* Style pour les quiz */
574 .quiz-container {
575   width: 100%;
576   margin-bottom: 1.5vh;
577 }
578
579 .quiz-question {
580   font-weight: bold;
581   margin-bottom: 1vh;
582 }
583
584 .quiz-options {
585   display: flex;
586   flex-direction: column;
587   gap: 0.8vh;
588   margin-bottom: 1.5vh;
589 }
590
591 .quiz-option {
592   display: flex;
593   align-items: center;
594   padding: 0.8vh 1vw;
595   border: 1px solid var(--color-accent-light);
596   border-radius: var(--border-radius);
597   cursor: pointer;
598   transition: background-color 0.2s;
599 }
600
601 .quiz-option:hover {
602   background-color: var(--color-hover);
603 }
604
605 .quiz-option.selected {
606   background-color: var(--color-active);
607   border-color: var(--color-accent);
608 }
609
610 .quiz-option.correct {
611   background-color: rgba(100, 100, 100, 0.3);
612 }
613
614 .quiz-option.incorrect {
615   background-color: rgba(150, 150, 150, 0.3);
616 }
617
618 .quiz-feedback {
619   margin-top: 1vh;
620   padding: 1vh;
621   border-radius: var(--border-radius);
622   display: none;
623 }
624
625 /* Styles pour les drag and drop */
626 .drag-container {
627   display: flex;
628   flex-wrap: wrap;
629   gap: 1vh;
```

```
630 margin-bottom: 1.5vh;
631 }
632
633 .draggable {
634   padding: 1vh 1vw;
635   background: var(--color-accent-light);
636   border: 1px solid var(--color-border);
637   cursor: grab;
638   border-radius: var(--border-radius);
639   user-select: none;
640 }
641
642 .draggable:active {
643   cursor: grabbing;
644 }
645
646 .drop-zone {
647   width: 100%;
648   min-height: 10vh;
649   border: 2px dashed var(--color-accent-light);
650   display: flex;
651   flex-wrap: wrap;
652   gap: 0.5vh;
653   padding: 1vh;
654   margin-top: 1vh;
655   border-radius: var(--border-radius);
656 }
657
658 .drop-zone.over {
659   background-color: var(--color-hover);
660 }
661
662 /* Styles pour les chronologies */
663 .timeline {
664   position: relative;
665   width: 100%;
666   padding: 20px 0;
667   margin-bottom: 1.5vh;
668 }
669
670 .timeline:before {
671   content: '';
672   position: absolute;
673   top: 0;
674   left: 10px;
675   height: 100%;
676   width: 2px;
677   background: var(--color-accent);
678 }
679
680 .timeline-item {
681   position: relative;
682   margin-left: 30px;
683   padding: 10px;
684   margin-bottom: 10px;
685   background: var(--color-accent-light);
686   border-radius: var(--border-radius);
687 }
688
689 .timeline-item:before {
690   content: '';
691   position: absolute;
692   left: -25px;
693   top: 15px;
694   width: 10px;
695   height: 10px;
696   border-radius: 50%;
697   background: var(--color-accent);
698 }
699
700 .timeline-date {
701   font-weight: bold;
702   margin-bottom: 5px;
703 }
704
705 /* Styles pour les tableaux */
706 .data-table {
707   width: 100%;
708   border-collapse: collapse;
709   margin-bottom: 1.5vh;
710 }
711
712 .data-table th, .data-table td {
713   padding: 1vh 1vw;
714   text-align: left;
715   border: 1px solid var(--color-border);
716 }
717
718 .data-table th {
719   background-color: var(--color-accent-light);
720 }
721
722 .data-table tr:nth-child(even) {
723   background-color: var(--color-hover);
724 }
725
726 /* Styles pour les graphiques */
727 .chart-container {
728   width: 100%;
729   height: 200px;
730   margin-bottom: 1.5vh;
731   position: relative;
732 }
733
734 /* Styles pour le mode nuit/jour */
```

```
735 .theme-switch {
736   position: relative;
737   width: 60px;
738   height: 30px;
739   margin-left: 10px;
740 }
741
742 .theme-switch input {
743   opacity: 0;
744   width: 0;
745   height: 0;
746 }
747
748 .theme-switch-slider {
749   position: absolute;
750   cursor: pointer;
751   top: 0;
752   left: 0;
753   right: 0;
754   bottom: 0;
755   background-color: var(--color-accent-light);
756   transition: .4s;
757   border-radius: 30px;
758 }
759
760 .theme-switch-slider:before {
761   position: absolute;
762   content: "";
763   height: 22px;
764   width: 22px;
765   left: 4px;
766   bottom: 4px;
767   background-color: white;
768   transition: .4s;
769   border-radius: 50%;
770 }
771
772 input:checked + .theme-switch-slider {
773   background-color: var(--color-accent);
774 }
775
776 input:checked + .theme-switch-slider:before {
777   transform: translateX(30px);
778   background-color: var(--color-bg);
779 }
780
781 /* Styles pour les SVGs et illustrations */
782 .svg-illustration {
783   width: 100%;
784   height: auto;
785   max-height: 200px;
786   display: flex;
787   justify-content: center;
788   align-items: center;
789   margin-bottom: 1.5vh;
790 }
791
792 /* Styles pour le panneau de paramètres */
793 .settings-panel {
794   position: absolute;
795   top: 11vh;
796   right: 2vw;
797   width: 300px;
798   background: var(--color-bg);
799   border: var(--border-width) solid var(--color-border);
800   padding: 1.5vh 1.5vw;
801   z-index: 1000;
802   display: none;
803   border-radius: var(--border-radius);
804   box-shadow: var(--shadow-md);
805 }
806
807 .settings-title {
808   font-weight: bold;
809   font-size: calc(1.1 * var(--font-size-base));
810   margin-bottom: 1vh;
811   text-align: center;
812   border-bottom: var(--border-width) solid var(--color-border);
813   padding-bottom: 0.5vh;
814 }
815
816 .settings-group {
817   margin-bottom: 1.5vh;
818 }
819
820 .settings-group-title {
821   font-weight: bold;
822   margin-bottom: 0.5vh;
823   font-size: 0.9em;
824 }
825
826 .settings-option {
827   display: flex;
828   align-items: center;
829   margin-bottom: 0.8vh;
830 }
831
832 .settings-option label {
833   margin-left: 0.5vw;
834   flex-grow: 1;
835 }
836
837 /* Styles pour les tooltips d'aide */
838 .tooltip {
839   position: relative;
```

```
840 display: inline-block;
841 border-bottom: 1px dotted var(--color-accent);
842 cursor: help;
843 }
844
845 .tooltip .tooltip-text {
846   visibility: hidden;
847   width: 200px;
848   background-color: var(--color-bg);
849   color: var(--color-text);
850   text-align: center;
851   border-radius: 6px;
852   padding: 5px;
853   position: absolute;
854   z-index: 1;
855   bottom: 125%;
856   left: 50%;
857   margin-left: -100px;
858   opacity: 0;
859   transition: opacity 0.3s;
860   border: 1px solid var(--color-border);
861   font-size: 0.9em;
862   box-shadow: var(--shadow-sm);
863 }
864
865 .tooltip:hover .tooltip-text {
866   visibility: visible;
867   opacity: 1;
868 }
869
870 /* Indicateur de chargement */
871 .loading-indicator {
872   position: fixed;
873   top: 50%;
874   left: 50%;
875   transform: translate(-50%, -50%);
876   display: none;
877   flex-direction: column;
878   align-items: center;
879   gap: 10px;
880   z-index: 3000;
881 }
882
883 .loading-spinner {
884   width: 40px;
885   height: 40px;
886   border: 4px solid var(--color-accent-light);
887   border-top: 4px solid var(--color-accent);
888   border-radius: 50%;
889   animation: spin 1s linear infinite;
890 }
891
892 @keyframes spin {
893   0% { transform: rotate(0deg); }
894   100% { transform: rotate(360deg); }
895 }
896
897 /* Aide contextuelle */
898 .help-panel {
899   position: fixed;
900   bottom: 20px;
901   left: 20px;
902   background-color: var(--color-bg);
903   border: 1px solid var(--color-border);
904   border-radius: var(--border-radius);
905   padding: 15px;
906   max-width: 300px;
907   box-shadow: var(--shadow-md);
908   z-index: 1000;
909   display: none;
910 }
911
912 .help-panel h3 {
913   margin-bottom: 10px;
914 }
915
916 .help-panel p {
917   margin-bottom: 10px;
918 }
919
920 .help-panel ul {
921   margin-left: 20px;
922 }
923
924 .help-panel ul li {
925   margin-bottom: 5px;
926 }
927
928 .close-help {
929   position: absolute;
930   top: 5px;
931   right: 5px;
932   cursor: pointer;
933 }
934
935 /* Notifications */
936 .notification {
937   position: fixed;
938   top: 20px;
939   right: 20px;
940   padding: 10px 15px;
941   background-color: var(--color-accent-light);
942   color: var(--color-text);
943   border-radius: var(--border-radius);
944   box-shadow: var(--shadow-md);
```

```
945 z-index: 2000;
946 opacity: 0;
947 transition: opacity 0.3s ease;
948 max-width: 300px;
949 }
950
951 .notification.show {
952   opacity: 1;
953 }
954
955 /* Styles pour les jeux éducatifs */
956 .memory-game {
957   display: grid;
958   grid-template-columns: repeat(4, 1fr);
959   gap: 10px;
960   perspective: 1000px;
961   margin-bottom: 1.5vh;
962 }
963
964 .memory-card {
965   height: 80px;
966   position: relative;
967   transform-style: preserve-3d;
968   transition: transform 0.5s;
969   cursor: pointer;
970 }
971
972 .memory-card.flipped {
973   transform: rotateY(180deg);
974 }
975
976 .memory-card .front, .memory-card .back {
977   position: absolute;
978   width: 100%;
979   height: 100%;
980   backface-visibility: hidden;
981   display: flex;
982   justify-content: center;
983   align-items: center;
984   border-radius: var(--border-radius);
985   border: 1px solid var(--color-border);
986 }
987
988 .memory-card .front {
989   background-color: var(--color-accent-light);
990   transform: rotateY(180deg);
991 }
992
993 .memory-card .back {
994   background-color: var(--color-accent);
995 }
996
997 /* Menu sélection de langue */
998 .language-selector {
999   display: flex;
1000   align-items: center;
1001 }
1002
1003 .language-menu {
1004   position: absolute;
1005   top: 100%;
1006   right: 0;
1007   background-color: var(--color-bg);
1008   border: 1px solid var(--color-border);
1009   border-radius: var(--border-radius);
1010   box-shadow: var(--shadow-md);
1011   display: none;
1012   z-index: 1000;
1013 }
1014
1015 .language-menu.show {
1016   display: block;
1017 }
1018
1019 .language-option {
1020   padding: 8px 12px;
1021   cursor: pointer;
1022   transition: background-color 0.2s;
1023 }
1024
1025 .language-option:hover {
1026   background-color: var(--color-hover);
1027 }
1028
1029 /* Audio player */
1030 .audio-player {
1031   width: 100%;
1032   display: flex;
1033   align-items: center;
1034   gap: 10px;
1035   margin-bottom: 1.5vh;
1036   background: var(--color-accent-light);
1037   padding: 8px;
1038   border-radius: var(--border-radius);
1039 }
1040
1041 .audio-player-controls {
1042   display: flex;
1043   align-items: center;
1044   gap: 5px;
1045 }
1046
1047 .audio-player-progress {
1048   flex-grow: 1;
1049   height: 5px;
```

```
1050 background-color: var(--color-bg);
1051 border-radius: 5px;
1052 overflow: hidden;
1053 }
1054
1055 .audio-player-progress-bar {
1056   height: 100%;
1057   width: 0;
1058   background-color: var(--color-accent);
1059 }
1060
1061 .audio-player-time {
1062   font-size: 0.8em;
1063 }
1064
1065 /* Score system */
1066 .score-display {
1067   position: fixed;
1068   top: 20px;
1069   left: 20px;
1070   background-color: var(--color-bg);
1071   border: 1px solid var(--color-border);
1072   border-radius: var(--border-radius);
1073   padding: 10px 15px;
1074   box-shadow: var(--shadow-sm);
1075   z-index: 1000;
1076   font-weight: bold;
1077   display: none;
1078 }
1079
1080 /* Styles pour les textes à trous */
1081 .fill-blank {
1082   margin-bottom: 1.5vh;
1083 }
1084
1085 .fill-blank-text {
1086   line-height: 1.6;
1087   margin-bottom: 1vh;
1088 }
1089
1090 .fill-blank-input {
1091   display: inline-block;
1092   width: 100px;
1093   border: none;
1094   border-bottom: 1px solid var(--color-accent);
1095   background-color: transparent;
1096   color: var(--color-text);
1097   text-align: center;
1098   margin: 0 2px;
1099 }
1100
1101 /* Image avec zoom */
1102 .zoomable-image-container {
1103   position: relative;
1104   width: 100%;
1105   overflow: hidden;
1106   margin-bottom: 1.5vh;
1107   cursor: zoom-in;
1108 }
1109
1110 .zoomable-image {
1111   width: 100%;
1112   height: auto;
1113   transition: transform 0.3s ease;
1114 }
1115
1116 .zoomable-image-container.zoomed {
1117   cursor: zoom-out;
1118 }
1119
1120 .zoomable-image-container.zoomed .zoomable-image {
1121   transform: scale(1.5);
1122 }
1123
1124 /* Configuration de base des layouts */
1125 /* 1. Deux sections de même dimension */
1126 .layout-two-equal .section {
1127   width: 50%;
1128   height: 100%;
1129   border: 1px dashed var(--color-border);
1130   box-sizing: border-box;
1131   display: flex;
1132   flex-direction: column;
1133   padding: 1.5vh 1.5vw;
1134 }
1135
1136 /* 2. Une section à gauche et deux superposées à droite */
1137 .layout-one-two .left-section {
1138   width: 50%;
1139   height: 100%;
1140   border: 1px dashed var(--color-border);
1141   box-sizing: border-box;
1142   display: flex;
1143   flex-direction: column;
1144   padding: 1.5vh 1.5vw;
1145 }
1146
1147 .layout-one-two .right-sections {
1148   width: 50%;
1149   height: 100%;
1150   display: flex;
1151   flex-direction: column;
1152 }
1153
1154 .layout-one-two .right-top, .layout-one-two .right-bottom {
```

```
1155 height: 50%;  
1156 border: 1px dashed var(--color-border);  
1157 box-sizing: border-box;  
1158 display: flex;  
1159 flex-direction: column;  
1160 padding: 1.5vh 1.5vw;  
1161 }  
1162  
/* 3. Une seule section */  
1163 .layout-full .section {  
1164 width: 100%;  
1165 height: 100%;  
1166 border: 1px dashed var(--color-border);  
1167 box-sizing: border-box;  
1168 display: flex;  
1169 flex-direction: column;  
1170 padding: 1.5vh 1.5vw;  
1171 }  
1172  
/* 4. Deux sections superposées à gauche et une à droite */  
1173 .layout-two-one .left-sections {  
1174 width: 50%;  
1175 height: 100%;  
1176 display: flex;  
1177 flex-direction: column;  
1178 }  
1179  
.layout-two-one .left-top, .layout-two-one .left-bottom {  
1180 height: 50%;  
1181 border: 1px dashed var(--color-border);  
1182 box-sizing: border-box;  
1183 display: flex;  
1184 flex-direction: column;  
1185 padding: 1.5vh 1.5vw;  
1186 }  
1187  
.layout-two-one .right-section {  
1188 width: 50%;  
1189 height: 100%;  
1190 border: 1px dashed var(--color-border);  
1191 box-sizing: border-box;  
1192 display: flex;  
1193 flex-direction: column;  
1194 padding: 1.5vh 1.5vw;  
1195 }  
1196  
/* 5. Trois sections de même dimension */  
1197 .layout-three-equal .section {  
1198 width: 33.33%;  
1199 height: 100%;  
1200 border: 1px dashed var(--color-border);  
1201 box-sizing: border-box;  
1202 display: flex;  
1203 flex-direction: column;  
1204 padding: 1.5vh 1.5vw;  
1205 }  
1206  
/* 6. Grille 2x2 */  
1207 .layout-grid-2x2 {  
1208 display: flex;  
1209 flex-wrap: wrap;  
1210 }  
1211  
.layout-grid-2x2 .section {  
1212 width: 50%;  
1213 height: 50%;  
1214 border: 1px dashed var(--color-border);  
1215 box-sizing: border-box;  
1216 display: flex;  
1217 flex-direction: column;  
1218 padding: 1.5vh 1.5vw;  
1219 }  
1220  
/* 7. Grille 3x1 superposées */  
1221 .layout-three-rows .section {  
1222 width: 100%;  
1223 height: 33.33%;  
1224 border: 1px dashed var(--color-border);  
1225 box-sizing: border-box;  
1226 display: flex;  
1227 flex-direction: column;  
1228 padding: 1.5vh 1.5vw;  
1229 }  
1230  
/* 8. Une grande section à gauche et trois petites sections empilées à droite */  
1231 .layout-one-three .left-section {  
1232 width: 70%;  
1233 height: 100%;  
1234 border: 1px dashed var(--color-border);  
1235 box-sizing: border-box;  
1236 display: flex;  
1237 flex-direction: column;  
1238 padding: 1.5vh 1.5vw;  
1239 }  
1240  
.layout-one-three .right-sections {  
1241 width: 30%;  
1242 height: 100%;  
1243 display: flex;  
1244 flex-direction: column;  
1245 }  
1246  
.layout-one-three .right-section {  
1247 height: 33.33%;  
1248 border: 1px dashed var(--color-border);
```

```
1260 box-sizing: border-box;
1261 display: flex;
1262 flex-direction: column;
1263 padding: 1.5vh 1.5vw;
1264 }
1265
1266 /* 9. Disposition en T (une en haut, deux en bas) */
1267 .layout-t-shape .top-section {
1268     width: 100%;
1269     height: 50%;
1270     border: 1px dashed var(--color-border);
1271     box-sizing: border-box;
1272     display: flex;
1273     flex-direction: column;
1274     padding: 1.5vh 1.5vw;
1275 }
1276
1277 .layout-t-shape .bottom-sections {
1278     width: 100%;
1279     height: 50%;
1280     display: flex;
1281 }
1282
1283 .layout-t-shape .bottom-left, .layout-t-shape .bottom-right {
1284     width: 50%;
1285     height: 100%;
1286     border: 1px dashed var(--color-border);
1287     box-sizing: border-box;
1288     display: flex;
1289     flex-direction: column;
1290     padding: 1.5vh 1.5vw;
1291 }
1292
1293 /* 10. Disposition en Z */
1294 .layout-z-shape {
1295     display: flex;
1296     flex-direction: column;
1297     height: 100%;
1298 }
1299
1300 .layout-z-shape .top-row, .layout-z-shape .bottom-row {
1301     display: flex;
1302     height: 50%;
1303 }
1304
1305 .layout-z-shape .top-left, .layout-z-shape .top-right,
1306 .layout-z-shape .bottom-left, .layout-z-shape .bottom-right {
1307     width: 50%;
1308     border: 1px dashed var(--color-border);
1309     box-sizing: border-box;
1310     display: flex;
1311     flex-direction: column;
1312     padding: 1.5vh 1.5vw;
1313 }
1314
1315 .layout-z-shape .top-right, .layout-z-shape .bottom-left {
1316     background-color: var(--color-hover);
1317 }
1318
1319 /* 11. Disposition avec une section centrale et quatre coins */
1320 .layout-center-corners {
1321     position: relative;
1322     height: 100%;
1323 }
1324
1325 .layout-center-corners .center-section {
1326     position: absolute;
1327     top: 25%;
1328     left: 25%;
1329     width: 50%;
1330     height: 50%;
1331     border: 1px dashed var(--color-border);
1332     box-sizing: border-box;
1333     display: flex;
1334     flex-direction: column;
1335     padding: 1.5vh 1.5vw;
1336     z-index: 2;
1337     background-color: var(--color-bg);
1338 }
1339
1340 .layout-center-corners .corner {
1341     position: absolute;
1342     width: 40%;
1343     height: 40%;
1344     border: 1px dashed var(--color-border);
1345     box-sizing: border-box;
1346     display: flex;
1347     flex-direction: column;
1348     padding: 1.5vh 1.5vw;
1349     z-index: 1;
1350 }
1351
1352 .layout-center-corners .top-left-corner {
1353     top: 5%;
1354     left: 5%;
1355 }
1356
1357 .layout-center-corners .top-right-corner {
1358     top: 5%;
1359     right: 5%;
1360 }
1361
1362 .layout-center-corners .bottom-left-corner {
1363     bottom: 5%;
1364     left: 5%;
```

```
1365
1366
1367 .layout-center-corners .bottom-right-corner {
1368     bottom: 5%;
1369     right: 5%;
1370 }
1371
1372 /* 12. Disposition en croix */
1373 .layout-cross {
1374     position: relative;
1375     height: 100%;
1376 }
1377
1378 .layout-cross .center-section {
1379     position: absolute;
1380     top: 33.33%;
1381     left: 33.33%;
1382     width: 33.33%;
1383     height: 33.33%;
1384     border: 1px dashed var(--color-border);
1385     box-sizing: border-box;
1386     display: flex;
1387     flex-direction: column;
1388     padding: 1.5vh 1.5vw;
1389     z-index: 2;
1390 }
1391
1392 .layout-cross .top-section, .layout-cross .bottom-section {
1393     position: absolute;
1394     left: 33.33%;
1395     width: 33.33%;
1396     height: 33.33%;
1397     border: 1px dashed var(--color-border);
1398     box-sizing: border-box;
1399     display: flex;
1400     flex-direction: column;
1401     padding: 1.5vh 1.5vw;
1402 }
1403
1404 .layout-cross .top-section {
1405     top: 0;
1406 }
1407
1408 .layout-cross .bottom-section {
1409     bottom: 0;
1410 }
1411
1412 .layout-cross .left-section, .layout-cross .right-section {
1413     position: absolute;
1414     top: 33.33%;
1415     height: 33.33%;
1416     width: 33.33%;
1417     border: 1px dashed var(--color-border);
1418     box-sizing: border-box;
1419     display: flex;
1420     flex-direction: column;
1421     padding: 1.5vh 1.5vw;
1422 }
1423
1424 .layout-cross .left-section {
1425     left: 0;
1426 }
1427
1428 .layout-cross .right-section {
1429     right: 0;
1430 }
1431
1432 /* Adapter les tailles de texte et autres éléments pour le responsive */
1433 @media screen and (max-width: 768px) {
1434     .slide-title {
1435         font-size: calc(1.0 * var(--font-size-base));
1436     }
1437
1438     .section-title, .section-content, .summary-item {
1439         font-size: calc(0.9 * var(--font-size-base));
1440     }
1441
1442     .summary-panel {
1443         width: 35vw;
1444     }
1445
1446     .icon-button {
1447         width: calc(4 * var(--vw));
1448         height: calc(4 * var(--vh));
1449     }
1450 }
1451
1452 @media screen and (max-width: 480px) {
1453     .slide-title {
1454         font-size: calc(0.9 * var(--font-size-base));
1455     }
1456
1457     .section-title, .section-content, .summary-item {
1458         font-size: calc(0.8 * var(--font-size-base));
1459     }
1460
1461     .summary-panel {
1462         width: 50vw;
1463     }
1464
1465     .icon-button {
1466         width: calc(5 * var(--vw));
1467         height: calc(5 * var(--vh));
1468     }
1469 }
```

```
1470
1471 /* Lecteur audio */
1472 .text-to-speech {
1473   display: inline-flex;
1474   align-items: center;
1475   justify-content: center;
1476   width: 24px;
1477   height: 24px;
1478   background: transparent;
1479   border: none;
1480   cursor: pointer;
1481   color: var(--color-accent);
1482 }
1483
1484 /* Animations CSS */
1485 @keyframes fadeIn {
1486   from { opacity: 0; }
1487   to { opacity: 1; }
1488 }
1489
1490 .fade-in {
1491   animation: fadeIn 1s ease-in;
1492 }
1493
1494 @keyframes slideInRight {
1495   from { transform: translateX(50px); opacity: 0; }
1496   to { transform: translateX(0); opacity: 1; }
1497 }
1498
1499 .slide-in-right {
1500   animation: slideInRight 0.5s ease-out;
1501 }
1502
1503 @keyframes slideInLeft {
1504   from { transform: translateX(-50px); opacity: 0; }
1505   to { transform: translateX(0); opacity: 1; }
1506 }
1507
1508 .slide-in-left {
1509   animation: slideInLeft 0.5s ease-out;
1510 }
1511
1512 @keyframes scaleIn {
1513   from { transform: scale(0.8); opacity: 0; }
1514   to { transform: scale(1); opacity: 1; }
1515 }
1516
1517 .scale-in {
1518   animation: scaleIn 0.5s ease-out;
1519 }
1520
1521 /* QR code */
1522 .qr-code {
1523   display: flex;
1524   justify-content: center;
1525   margin: 15px 0;
1526 }
1527
1528 /* Export options */
1529 .export-options {
1530   display: flex;
1531   gap: 10px;
1532   margin-top: 15px;
1533 }
1534
1535 .export-button {
1536   padding: 8px 12px;
1537   background: var(--color-accent-light);
1538   border: 1px solid var(--color-border);
1539   cursor: pointer;
1540   border-radius: var(--border-radius);
1541 }
1542
1543 .export-button:hover {
1544   background: var(--color-hover);
1545 }
1546
1547 /* Timer/Chronomètre */
1548 .timer {
1549   font-size: 1.2em;
1550   font-weight: bold;
1551   padding: 8px 12px;
1552   background-color: var(--color-accent-light);
1553   border-radius: var(--border-radius);
1554   display: inline-block;
1555   margin-bottom: 15px;
1556 }
1557
1558 /* Carte mentale */
1559 .mind-map {
1560   position: relative;
1561   width: 100%;
1562   min-height: 200px;
1563   margin-bottom: 20px;
1564 }
1565
1566 .mind-map-node {
1567   position: absolute;
1568   padding: 8px 12px;
1569   background-color: var(--color-accent-light);
1570   border: 1px solid var(--color-border);
1571   border-radius: var(--border-radius);
1572 }
1573
1574 .mind-map-connection {
```

```
1575 position: absolute;
1576 height: 2px;
1577 background-color: var(--color-border);
1578 transform-origin: 0 0;
1579 }
1580
1581 /* Pour le SVG */
1582 svg text {
1583   fill: var(--color-text);
1584 }
1585
1586 svg line, svg path {
1587   stroke: var(--color-accent);
1588 }
1589
1590 /* Classes pour les effets parallax */
1591 .parallax-container {
1592   overflow: hidden;
1593   position: relative;
1594   height: 200px;
1595   margin-bottom: 20px;
1596 }
1597
1598 .parallax-layer {
1599   position: absolute;
1600   width: 100%;
1601   height: 100%;
1602   transition: transform 0.1s ease-out;
1603 }
1604 </style>
1605 </head>
1606
1607 <body>
1608   <div class="main-container" id="mainContainer">
1609     <!-- Barre de progression globale -->
1610     <div class="progress-bar-container">
1611       <div class="progress-bar" id="progressBar"></div>
1612     </div>
1613
1614     <!-- Bandeau supérieur -->
1615     <div class="top-banner">
1616       <div class="top-left">
1617         <span id="username">kamza157</span>
1618         <div class="language-selector">
1619           <button class="icon-button" id="btnLanguage">
1620             <i class="fas fa-globe"></i>
1621           </button>
1622           <div class="language-menu" id="languageMenu">
1623             <div class="language-option" data-lang="fr">Français</div>
1624             <div class="language-option" data-lang="en">English</div>
1625             <div class="language-option" data-lang="es">Español</div>
1626           </div>
1627         </div>
1628       </div>
1629       <div class="top-center">Présentation Interactive - Nuances de Gris</div>
1630       <div class="top-right">
1631         <span id="current-datetime">2025-04-22 01:35:43</span>
1632         <label class="theme-switch" for="themeToggle">
1633           <input type="checkbox" id="themeToggle">
1634           <span class="theme-switch-slider"></span>
1635         </label>
1636       </div>
1637     </div>
1638
1639     <!-- Panneau Sommaire -->
1640     <div class="summary-panel" id="summaryPanel">
1641       <div class="summary-title">Sommaire</div>
1642       <div class="summary-list">
1643         <!-- Les items seront ajoutés dynamiquement par JavaScript -->
1644       </div>
1645     </div>
1646
1647     <!-- Panneau de paramètres -->
1648     <div class="settings-panel" id="settingsPanel">
1649       <div class="settings-title">Paramètres</div>
1650
1651       <div class="settings-group">
1652         <div class="settings-group-title">Accessibilité</div>
1653         <div class="settings-option">
1654           <input type="checkbox" id="settingHighContrast">
1655           <label for="settingHighContrast">Contraste élevé</label>
1656         </div>
1657         <div class="settings-option">
1658           <input type="checkbox" id="settingLargeText">
1659           <label for="settingLargeText">Texte agrandi</label>
1660         </div>
1661         <div class="settings-option">
1662           <input type="checkbox" id="settingAutoTTS" checked>
1663           <label for="settingAutoTTS">Lecture audio automatique</label>
1664         </div>
1665       </div>
1666
1667       <div class="settings-group">
1668         <div class="settings-group-title">Affichage</div>
1669         <div class="settings-option">
1670           <input type="checkbox" id="settingHideBanners">
1671           <label for="settingHideBanners">Masquer les bandeaux</label>
1672         </div>
1673         <div class="settings-option">
1674           <input type="checkbox" id="settingShowTimer">
1675           <label for="settingShowTimer">Afficher le chronomètre</label>
1676         </div>
1677         <div class="settings-option">
1678           <input type="checkbox" id="settingEnableAnimations" checked>
1679           <label for="settingEnableAnimations">Activer les animations</label>
1680         </div>
1681       </div>
1682     </div>
1683   </div>
1684
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1680      </div>
1681  </div>
1682</div>
1683
1684  <!-- Boutons de fonction avec icônes -->
1685  <div class="function-buttons">
1686    <div class="icon-button" id="btnSummary" title="Afficher le sommaire">
1687      <i class="fas fa-list"></i>
1688    </div>
1689    <div class="icon-button" id="btnFullscreen" title="Mode plein écran">
1690      <i class="fas fa-expand"></i>
1691    </div>
1692    <div class="icon-button" id="btnToggleBanners" title="Masquer les bandeaux">
1693      <i class="fas fa-eye-slash"></i>
1694    </div>
1695    <div class="icon-button" id="btnSettings" title="Paramètres">
1696      <i class="fas fa-cog"></i>
1697    </div>
1698    <div class="icon-button" id="btnHelp" title="Aide">
1699      <i class="fas fa-question"></i>
1700    </div>
1701  </div>
1702
1703  <!-- Navigation flottante pour quand les bandeaux sont cachés -->
1704  <div class="floating-nav">
1705    <div class="nav-button prev-button inactive"></div>
1706    <div id="slide-counter-floating">1/12</div>
1707    <div class="nav-button next-button"></div>
1708  </div>
1709
1710  <!-- Mini carte des diapositives -->
1711  <div class="slide-map" id="slideMap">
1712    <!-- Les éléments seront ajoutés dynamiquement par JavaScript -->
1713  </div>
1714
1715  <!-- Affichage du score -->
1716  <div class="score-display" id="scoreDisplay">Score: <span id="scoreValue">0</span></div>
1717
1718  <!-- Zone du diaporama -->
1719  <div class="slides-container">
1720    <!-- Diapositive 1: Deux sections égales -->
1721    <div class="slide active" id="slide-1" data-title="Introduction aux Techniques de Présentation">
1722      <div class="slide-title">
1723        Introduction aux Techniques de Présentation
1724        <span class="slide-counter-title">1/12</span>
1725      </div>
1726      <div class="slide-content layout-two-equal">
1727        <div class="section">
1728          <div class="section-container">
1729            <div class="expand-section-button" data-section="1-1" aria-label="Agrandir la section">
1730              <i class="fas fa-expand"></i>
1731            </div>
1732            <div class="section-title">
1733              <i class="fas fa-info-circle"></i> À propos de cette formation
1734              <button class="text-to-speech" data-target="about-text" aria-label="Lire le texte">
1735                <i class="fas fa-volume-up"></i>
1736              </button>
1737            </div>
1738            <div class="section-content">
1739              <p id="about-text" class="slide-in-right">Bienvenue dans cette présentation interactive sur les techniques modernes de présentation. Vous allez apprendre comment créer des présentations efficaces et engageantes.</p>
1740
1741              <div class="interactive-element">
1742                <div class="quiz-container">
1743                  <div class="quiz-question">Quel est votre niveau en création de présentations ?</div>
1744                  <div class="quiz-options">
1745                    <div class="quiz-option" data-value="débutant">Débutant</div>
1746                    <div class="quiz-option" data-value="intermédiaire">Intermédiaire</div>
1747                    <div class="quiz-option" data-value="avancé">Avancé</div>
1748                  </div>
1749                </div>
1750              </div>
1751
1752              <div class="svg-illustration">
1753                <img alt="Illustration d'un graphique à barres montrant une progression de l'apprentissage." data-bbox="248 708 888 778"/>
1754                <div>
1755                  <rect x="10" y="20" width="50" height="60" fill="#888" stroke="#444" stroke-width="2"/>
1756                  <rect x="75" y="20" width="50" height="60" fill="#aaa" stroke="#444" stroke-width="2"/>
1757                  <rect x="140" y="20" width="50" height="60" fill="#ccc" stroke="#444" stroke-width="2"/>
1758                  <text x="35" y="50" text-anchor="middle" dominant-baseline="middle">1</text>
1759                  <text x="100" y="50" text-anchor="middle" dominant-baseline="middle">2</text>
1760                  <text x="165" y="50" text-anchor="middle" dominant-baseline="middle">3</text>
1761                  <text x="100" y="95" text-anchor="middle" dominant-baseline="middle">Progression de l'apprentissage</text>
1762                </div>
1763              </div>
1764            </div>
1765          </div>
1766        <div class="section">
1767          <div class="section-container">
1768            <div class="expand-section-button" data-section="1-2" aria-label="Agrandir la section">
1769              <i class="fas fa-expand"></i>
1770            </div>
1771            <div class="section-title">
1772              <i class="fas fa-list-ol"></i> Objectifs d'apprentissage
1773            </div>
1774            <div class="section-content">
1775              <p class="slide-in-left">À la fin de cette présentation, vous serez capable de :</p>
1776              <ul class="fade-in">
1777                <li>Comprendre les principes fondamentaux de conception</li>
1778                <li>Maîtriser les différentes configurations de mise en page</li>
1779                <li>Intégrer des éléments interactifs dans vos présentations</li>
1780                <li>Appliquer les bonnes pratiques d'accessibilité</li>
1781                <li>Créer des présentations adaptées à différents supports</li>
1782              </ul>
1783
1784            <div class="timeline">
1785              <img alt="Illustration d'une timeline horizontale." data-bbox="248 988 888 1000"/>
1786            </div>
1787          </div>
1788        </div>
1789      </div>
1790    </div>
1791  </div>
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1804 <!-- Diapositive 2: Une section à gauche et deux superposées à droite -->
1805 <div class="slide" id="slide-2" data-title="Principes Fondamentaux du Design">
1806   <div class="slide-title">
1807     Principes Fondamentaux du Design
1808     <span class="slide-counter-title">2/12</span>
1809   </div>
1810   <div class="slide-content layout-one-two">
1811     <div class="left-section">
1812       <div class="section-container">
1813         <div class="expand-section-button" data-section="2-1" aria-label="Agrandir la section">
1814           <i class="fas fa-expand"></i>
1815         </div>
1816         <div class="section-title">
1817           <i class="fas fa-palette"></i> Les principes du design visuel
1818         </div>
1819         <div class="section-content">
1820           <p>Le design efficace repose sur quelques principes fondamentaux qui guident la création de présentations visuelles.</p>
1821
1822           <div class="interactive-element">
1823             <h4>Les quatre principes CRAP</h4>
1824             <div class="drag-container" id="dragPrinciples">
1825               <div class="draggable" draggable="true" data-id="contrast">Contraste</div>
1826               <div class="draggable" draggable="true" data-id="repetition">Répétition</div>
1827               <div class="draggable" draggable="true" data-id="alignment">Alignement</div>
1828               <div class="draggable" draggable="true" data-id="proximity">Proximité</div>
1829             </div>
1830             <p>Faites glisser les principes vers la zone ci-dessous pour les placer dans l'ordre correct :</p>
1831             <div class="drop-zone" id="dropZonePrinciples"></div>
1832           </div>
1833
1834
1835           <div class="zoomable-image-container">
1836             
1837           </div>
1838         </div>
1839       </div>
1840     </div>
1841     <div class="right-sections">
1842       <div class="right-top">
1843         <div class="section-container">
1844           <div class="expand-section-button" data-section="2-2" aria-label="Agrandir la section">
1845             <i class="fas fa-expand"></i>
1846           </div>
1847           <div class="section-title">
1848             <i class="fas fa-th-large"></i> Typographie et mise en page
1849           </div>
1850           <div class="section-content">
1851             <p>La typographie joue un rôle crucial dans la lisibilité et l'esthétique de vos présentations.</p>
1852
1853             <div class="fill-blank">
1854               <div class="fill-blank-text">
1855                 Une bonne pratique consiste à utiliser maximum <input type="text" class="fill-blank-input" data-answer="" value="maximum"/>
1856               </div>
1857               <button class="icon-button" id="checkTypo"><i class="fas fa-check"></i></button>
1858             </div>
1859
1860             <div class="tooltip">
1861               Conseils typographiques
1862               <span class="tooltip-text">Utilisez des polices sans-serif pour une meilleure lisibilité à l'écran.</span>
1863             </div>
1864           </div>
1865         </div>
1866       </div>
1867       <div class="right-bottom">
1868         <div class="section-container">
1869           <div class="expand-section-button" data-section="2-3" aria-label="Agrandir la section">
1870             <i class="fas fa-expand"></i>
1871           </div>
1872           <div class="section-title">
1873             <i class="fas fa-paint-brush"></i> Utilisation des couleurs
1874           </div>
1875           <div class="section-content">
1876             <p>Même en nuances de gris, la palette de couleurs peut être très expressive.</p>
1877
1878             <div class="chart-container">
1879               <img alt="Diagramme de堆叠矩形图，展示了不同颜色的占比：#1111 (10%)，#3333 (30%)，#6666 (25%)，#9999 (20%)，#CCCC (15%)" data-bbox="1879 1879 1000 1000"/>
1880               <rect x="10" y="10" width="45" height="100" fill="#1111" />
1881               <rect x="65" y="30" width="45" height="80" fill="#3333" />
1882               <rect x="120" y="50" width="45" height="60" fill="#6666" />
1883               <rect x="175" y="70" width="45" height="40" fill="#9999" />
1884               <rect x="230" y="90" width="45" height="20" fill="#CCCC" />
1885               <text x="32" y="130" text-anchor="middle" font-size="12" fill="#3333">10%</text>
1886               <text x="87" y="130" text-anchor="middle" font-size="12" fill="#3333">30%</text>
1887               <text x="142" y="130" text-anchor="middle" font-size="12" fill="#3333">25%</text>
1888               <text x="197" y="130" text-anchor="middle" font-size="12" fill="#3333">20%</text>
1889               <text x="252" y="130" text-anchor="middle" font-size="12" fill="#3333">15%</text>
1890             </div>
1891           </div>
1892         </div>
1893       </div>
1894     </div>
1895   </div>
1896 </div>
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1890 <text x="150" y="150" text-anchor="middle" font-size="14" fill="#333">Distribution des contrastes</text>
1891 </svg>
1892 </div>
1893
1894 <div class="quiz-container">
1895   <div class="quiz-question">Quel niveau de contraste minimum est recommandé pour l'accessibilité ?</div>
1896   <div class="quiz-options">
1897     <div class="quiz-option" data-value="3:1">3:1</div>
1898     <div class="quiz-option correct" data-value="4.5:1">4.5:1</div>
1899     <div class="quiz-option" data-value="7:1">7:1</div>
1900   </div>
1901   </div>
1902 </div>
1903 </div>
1904 </div>
1905 </div>
1906 </div>
1907 </div>
1908
1909 <!-- Diapositive 3: Une seule section -->
1910 <div class="slide" id="slide-3" data-title="L'Accessibilité en Nuances de Gris">
1911   <div class="slide-title">
1912     L'Accessibilité en Nuances de Gris
1913     <span class="slide-counter-title">3/12</span>
1914   </div>
1915   <div class="slide-content layout-full">
1916     <div class="section">
1917       <div class="section-container">
1918         <div class="expand-section-button" data-section="3-1" aria-label="Agrandir la section">
1919           <i class="fas fa-expand"></i>
1920         </div>
1921         <div class="section-title">
1922           <i class="fas fa-universal-access"></i> Concevoir pour tous
1923         </div>
1924         <div class="section-content">
1925           <div class="timer" id="sectionTimer">00:00</div>
1926
1927           <p>L'accessibilité n'est pas une option mais une nécessité. Une conception en nuances de gris présente plusieurs
1928
1929           <ul class="scale-in">
1930             <li>Meilleure lisibilité pour les personnes daltoniennes</li>
1931             <li>Focus sur la structure plutôt que sur les éléments décoratifs</li>
1932             <li>Meilleure compatibilité avec les lecteurs d'écran</li>
1933             <li>Facilité d'impression sans perte de lisibilité</li>
1934           </ul>
1935
1936           <div class="audio-player">
1937             <div class="audio-player-controls">
1938               <button class="icon-button" id="playAudio"><i class="fas fa-play"></i></button>
1939               <button class="icon-button" id="pauseAudio"><i class="fas fa-pause"></i></button>
1940             </div>
1941             <div class="audio-player-progress">
1942               <div class="audio-player-progress-bar"></div>
1943             </div>
1944             <div class="audio-player-time">00:00 / 01:30</div>
1945           </div>
1946
1947           <div class="data-table">
1948             <table>
1949               <thead>
1950                 <tr>
1951                   <th>Critère d'accessibilité</th>
1952                   <th>Niveau d'importance</th>
1953                   <th>Facilité d'implémentation</th>
1954                 </tr>
1955               </thead>
1956               <tbody>
1957                 <tr>
1958                   <td>Contraste de texte</td>
1959                   <td>Critique</td>
1960                   <td>Facile</td>
1961                 </tr>
1962                 <tr>
1963                   <td>Navigation clavier</td>
1964                   <td>Élevé</td>
1965                   <td>Moyen</td>
1966                 </tr>
1967                 <tr>
1968                   <td>Textes alternatifs</td>
1969                   <td>Élevé</td>
1970                   <td>Facile</td>
1971                 </tr>
1972                 <tr>
1973                   <td>Structure sémantique</td>
1974                   <td>Moyen</td>
1975                   <td>Complexe</td>
1976                 </tr>
1977               </tbody>
1978             </table>
1979           </div>
1980
1981           <div class="interactive-element">
1982             <div class="quiz-container">
1983               <div class="quiz-question">Parmi ces éléments, lequel n'est PAS un critère d'accessibilité WCAG ?</div>
1984               <div class="quiz-options">
1985                 <div class="quiz-option" data-value="a">Perceptible</div>
1986                 <div class="quiz-option" data-value="b">Utilisable</div>
1987                 <div class="quiz-option correct" data-value="c">Esthétique</div>
1988                 <div class="quiz-option" data-value="d">Robuste</div>
1989               </div>
1990               <div class="quiz-feedback"></div>
1991             </div>
1992           </div>
1993         </div>
1994       </div>
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1995
1996
1997
1998
1999 <!-- Diapositive 4 : Deux sections superposées à gauche et une à droite -->
2000 <div class="slide" id="slide-4" data-title="Interactivité et Engagement">
2001     <div class="slide-title">
2002         Interactivité et Engagement
2003         <span class="slide-counter-title">4/12</span>
2004     </div>
2005     <div class="slide-content layout-two-one">
2006         <div class="left-sections">
2007             <div class="left-top">
2008                 <div class="section-container">
2009                     <div class="expand-section-button" data-section="4-1" aria-label="Agrandir la section">
2010                         <i class="fas fa-expand"></i>
2011                     </div>
2012                     <div class="section-title">
2013                         <i class="fas fa-gamepad"></i> Quiz et jeux éducatifs
2014                     </div>
2015                     <div class="section-content">
2016                         <p>L'intégration d'éléments interactifs augmente significativement la rétention d'information.</p>
2017
2018                         <div class="memory-game" id="memoryGame">
2019                             <div class="memory-card" data-card="concept1">
2020                                 <div class="back"></div>
2021                                 <div class="front">Concept</div>
2022                             </div>
2023                             <div class="memory-card" data-card="concept1">
2024                                 <div class="back"></div>
2025                                 <div class="front">Idée abstraite</div>
2026                             </div>
2027                             <div class="memory-card" data-card="design1">
2028                                 <div class="back"></div>
2029                                 <div class="front">Design</div>
2030                             </div>
2031                             <div class="memory-card" data-card="design1">
2032                                 <div class="back"></div>
2033                                 <div class="front">Conception visuelle</div>
2034                             </div>
2035                         </div>
2036
2037                         <p><small>Jeu de mémoire : associez les termes à leurs définitions</small></p>
2038                     </div>
2039                 </div>
2040             </div>
2041             <div class="left-bottom">
2042                 <div class="section-container">
2043                     <div class="expand-section-button" data-section="4-2" aria-label="Agrandir la section">
2044                         <i class="fas fa-expand"></i>
2045                     </div>
2046                     <div class="section-title">
2047                         <i class="fas fa-chart-line"></i> Systèmes de progression
2048                     </div>
2049                     <div class="section-content">
2050                         <div class="chart-container">
2051                             <svg width="100%" height="100%" viewBox="0 0 300 150">
2052                                 <!-- Axe X -->
2053                                 <line x1="40" y1="110" x2="280" y2="110" stroke="#555" stroke-width="2" />
2054                                 <!-- Axe Y -->
2055                                 <line x1="40" y1="110" x2="40" y2="20" stroke="#555" stroke-width="2" />
2056
2057                                 <!-- Points de données -->
2058                                 <circle cx="70" cy="90" r="4" fill="#333" />
2059                                 <circle cx="100" cy="70" r="4" fill="#333" />
2060                                 <circle cx="130" cy="80" r="4" fill="#333" />
2061                                 <circle cx="160" cy="50" r="4" fill="#333" />
2062                                 <circle cx="190" cy="40" r="4" fill="#333" />
2063                                 <circle cx="220" cy="30" r="4" fill="#333" />
2064                                 <circle cx="250" cy="25" r="4" fill="#333" />
2065
2066                                 <!-- Lignes de connexion -->
2067                                 <polyline points="70,90 100,70 130,80 160,50 190,40 220,30 250,25"
2068                                     fill="none" stroke="#777" stroke-width="2" />
2069
2070                                 <!-- Étiquettes -->
2071                                 <text x="160" y="140" text-anchor="middle">Niveau d'interactivité</text>
2072                                 <text x="20" y="65" text-anchor="middle" transform="rotate(-90, 20, 65)">Engagement</text>
2073                             </svg>
2074                         </div>
2075
2076                         <div class="interactive-element">
2077                             <div class="quiz-container">
2078                                 <div class="quiz-question">Selon les études, quelle augmentation moyenne d'engagement peut apporter l
2079                                 <div class="quiz-options">
2080                                     <div class="quiz-option" data-value="a">10-20%</div>
2081                                     <div class="quiz-option" data-value="b">25-35%</div>
2082                                     <div class="quiz-option correct" data-value="c">40-60%</div>
2083                                 </div>
2084                             </div>
2085                         </div>
2086                     </div>
2087                 </div>
2088             </div>
2089         </div>
2090         <div class="right-section">
2091             <div class="section-container">
2092                 <div class="expand-section-button" data-section="4-3" aria-label="Agrandir la section">
2093                     <i class="fas fa-expand"></i>
2094                 </div>
2095                 <div class="section-title">
2096                     <i class="fas fa-hand-pointer"></i> Techniques d'interactivité
2097                 </div>
2098                 <div class="section-content">
2099                     <p>L'interactivité peut prendre plusieurs formes, même dans un design minimaliste en nuances de gris.</p>
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2100
2101
2102 <div class="parallax-container" id="parallaxDemo">
2103   <div class="parallax-layer" data-speed="0.2" style="background: #eee; z-index: 1;">
2104     <svg width="100%" height="100%" viewBox="0 0 300 200">
2105       <rect x="50" y="50" width="200" height="100" fill="#ddd" stroke="#999" stroke-width="2" />
2106       <text x="150" y="100" text-anchor="middle" dominant-baseline="middle" font-size="16">Effet Parallaxe</text>
2107     </svg>
2108   </div>
2109   <div class="parallax-layer" data-speed="0.5" style="z-index: 2;">
2110     <svg width="100%" height="100%" viewBox="0 0 300 200">
2111       <circle cx="150" cy="100" r="30" fill="#aaa" />
2112     </svg>
2113   </div>
2114   <div class="parallax-layer" data-speed="0.8" style="z-index: 3;">
2115     <svg width="100%" height="100%" viewBox="0 0 300 200">
2116       <circle cx="150" cy="100" r="15" fill="#555" />
2117     </svg>
2118   </div>
2119 </div>
2120 <p><small>Déplacez votre souris sur l'image ci-dessus pour voir l'effet parallaxe</small></p>
2121
2122 <h4>Types d'interactivité</h4>
2123 <ul>
2124   <li>Quizz et questionnaires</li>
2125   <li>Glisser-déposer</li>
2126   <li>Animations en réponse aux interactions</li>
2127   <li>Zoom et déplacement</li>
2128   <li>Navigation non-linéaire</li>
2129 </ul>
2130
2131 <div class="export-options">
2132   <button class="export-button" id="btnExportPDF">
2133     <i class="fas fa-file-pdf"></i> Télécharger en PDF
2134   </button>
2135   <button class="export-button" id="btnExportNotes">
2136     <i class="fas fa-sticky-note"></i> Exporter les notes
2137   </button>
2138 </div>
2139 </div>
2140 </div>
2141 </div>
2142 </div>
2143
2144 <!-- Diapositive 5: Trois sections de même dimension -->
2145 <div class="slide" id="slide-5" data-title="Navigation et Expérience Utilisateur">
2146   <div class="slide-title">
2147     Navigation et Expérience Utilisateur
2148     <span class="slide-counter-title">5/12</span>
2149   </div>
2150   <div class="slide-content layout-three-equal">
2151     <div class="section">
2152       <div class="section-container">
2153         <div class="expand-section-button" data-section="5-1" aria-label="Agrandir la section">
2154           <i class="fas fa-expand"></i>
2155         </div>
2156         <div class="section-title">
2157           <i class="fas fa-keyboard"></i> Navigation au clavier
2158         </div>
2159         <div class="section-content">
2160           <p>Une navigation efficace est essentielle pour l'accessibilité et l'expérience utilisateur.</p>
2161
2162         <div class="interactive-element">
2163           <h4>Raccourcis clavier</h4>
2164           <table class="data-table">
2165             <thead>
2166               <tr>
2167                 <th>Touche</th>
2168                 <th>Action</th>
2169               </tr>
2170             </thead>
2171             <tbody>
2172               <tr>
2173                 <td>→ ou Espace</td>
2174                 <td>Diapositive suivante</td>
2175               </tr>
2176               <tr>
2177                 <td>← ou Retour arrière</td>
2178                 <td>Diapositive précédente</td>
2179               </tr>
2180               <tr>
2181                 <td>F</td>
2182                 <td>Mode plein écran</td>
2183               </tr>
2184               <tr>
2185                 <td>Échap</td>
2186                 <td>Quitter plein écran</td>
2187               </tr>
2188               <tr>
2189                 <td>H</td>
2190                 <td>Afficher/masquer l'aide</td>
2191               </tr>
2192             </tbody>
2193           </table>
2194         </div>
2195
2196         <div class="interactive-element">
2197           <p>Appuyez sur la touche <strong><kbd>F</kbd></strong></p>
2198         </div>
2199       </div>
2200     </div>
2201   </div>
2202   <div class="section">
2203     <div class="section-container">
2204       <div class="expand-section-button" data-section="5-2" aria-label="Agrandir la section">

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2205     <i class="fas fa-expand"></i>
2206 </div>
2207 <div class="section-title">
2208     <i class="fas fa-hand-pointer"></i> Navigation tactile
2209 </div>
2210 <div class="section-content">
2211     <p>Les gestes tactiles sont essentiels pour l'utilisation sur appareils mobiles et écrans tactiles.</p>
2212
2213     <div class="svg-illustration">
2214         <svg width="200" height="150" viewBox="0 0 200 150">
2215             <!-- Smartphone outline -->
2216             <rect x="50" y="10" width="100" height="130" rx="10" fill="none" stroke="#333" stroke-width="2"/>
2217             <!-- Screen -->
2218             <rect x="60" y="20" width="80" height="110" fill="#eee" stroke="#333" stroke-width="1"/>
2219             <!-- Swipe left icon -->
2220             <path d="M120,75 L90,55 M90,75 L120,55" stroke="#555" stroke-width="2" fill="none"/>
2221             <path d="M130,75 L140,75 M80,75 L70,75" stroke="#555" stroke-width="2" fill="none"/>
2222             <!-- Annotations -->
2223             <text x="100" y="40" text-anchor="middle" font-size="10" fill="#333">Glisser</text>
2224             <text x="100" y="140" text-anchor="middle" font-size="12" fill="#333">Navigation tactile</text>
2225         </svg>
2226     </div>
2227
2228     <div class="interactive-element">
2229         <div class="quiz-container">
2230             <div class="quiz-question">Quel geste est généralement associé au passage à la diapositive suivante sur un smartphone ?</div>
2231             <div class="quiz-options">
2232                 <div class="quiz-option" data-value="a">Glisser vers le haut</div>
2233                 <div class="quiz-option correct" data-value="b">Glisser vers la gauche</div>
2234                 <div class="quiz-option" data-value="c">Double tap</div>
2235             </div>
2236         </div>
2237     </div>
2238 </div>
2239 </div>
2240 <div class="section">
2241     <div class="section-container">
2242         <div class="expand-section-button" data-section="5-3" aria-label="Agrandir la section">
2243             <i class="fas fa-expand"></i>
2244         </div>
2245         <div class="section-title">
2246             <i class="fas fa-sitemap"></i> Structure de navigation
2247         </div>
2248         <div class="section-content">
2249             <p>Une structure claire permet une navigation intuitive et une meilleure compréhension du contenu.</p>
2250
2251             <div class="mind-map" id="navigationMindMap">
2252                 <div class="mind-map-node" style="top: 5%; left: 5%; transform: translate(-50%, -50%);">Navigation</div>
2253                 <div class="mind-map-node" style="top: 20%; left: 30%;">Linéaire</div>
2254                 <div class="mind-map-node" style="top: 20%; left: 70%;">Non-linéaire</div>
2255                 <div class="mind-map-node" style="top: 80%; left: 30%;">Progressive</div>
2256                 <div class="mind-map-node" style="top: 80%; left: 70%;">Modulaire</div>
2257                 <!-- Les connexions sont gérées en JS -->
2258             </div>
2259
2260             <div class="interactive-element">
2261                 <p>Quelle structure convient mieux à votre présentation ?</p>
2262                 <div class="quiz-options">
2263                     <div class="quiz-option" data-value="lineaire">Structure linéaire</div>
2264                     <div class="quiz-option" data-value="modulaire">Structure modulaire</div>
2265                     <div class="quiz-option" data-value="hybride">Structure hybride</div>
2266                 </div>
2267             </div>
2268         </div>
2269     </div>
2270 </div>
2271 </div>
2272 </div>
2273 </div>
2274
2275 <!-- Diapositive 6: Grille 2x2 -->
2276 <div class="slide" id="slide-6" data-title="Animations et Transitions">
2277     <div class="slide-title">
2278         Animations et Transitions
2279         <span class="slide-counter-title">6/12</span>
2280     </div>
2281     <div class="slide-content layout-grid-2x2">
2282         <div class="section">
2283             <div class="section-container">
2284                 <div class="expand-section-button" data-section="6-1" aria-label="Agrandir la section">
2285                     <i class="fas fa-expand"></i>
2286                 </div>
2287                 <div class="section-title">
2288                     <i class="fas fa-film"></i> Types d'animations
2289                 </div>
2290                 <div class="section-content">
2291                     <p>Les animations peuvent améliorer considérablement l'expérience utilisateur lorsqu'elles sont bien utilisées.</p>
2292
2293                     <div class="interactive-element">
2294                         <button class="export-button" id="demoFade">Fondu</button>
2295                         <button class="export-button" id="demoSlide">Glissement</button>
2296                         <button class="export-button" id="demoScale">Échelle</button>
2297                         <div id="animationDemo" style="height: 100px; border: 1px solid #ccc; margin-top: 10px; display: flex; justify-content: center; align-items: center; font-size: small; font-style: italic;">Cliquez sur un bouton pour voir l'effet</div>
2298                     </div>
2299                 </div>
2300             </div>
2301         </div>
2302     </div>
2303     <div class="section">
2304         <div class="section-container">
2305             <div class="expand-section-button" data-section="6-2" aria-label="Agrandir la section">
2306                 <i class="fas fa-expand"></i>
2307             </div>
2308             <div class="section-title">

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        <i class="fas fa-clock"></i> Timing et rythme
    </div>
    <div class="section-content">
        <p>Le timing des animations est crucial pour une expérience fluide sans être distrayante.</p>

        <div class="timeline">
            <div class="timeline-item">
                <div class="timeline-date">Rapide (0.1-0.3s)</div>
                <div class="timeline-content">Pour feedback instantané (clics, hover)</div>
            </div>
            <div class="timeline-item">
                <div class="timeline-date">Moyen (0.3-0.6s)</div>
                <div class="timeline-content">Pour transitions entre états</div>
            </div>
            <div class="timeline-item">
                <div class="timeline-date">Lent (0.6-1.2s)</div>
                <div class="timeline-content">Pour entrées et sorties importantes</div>
            </div>
        </div>
    </div>
<div class="section">
    <div class="section-container">
        <div class="expand-section-button" data-section="6-3" aria-label="Agrandir la section">
            <i class="fas fa-expand"></i>
        </div>
        <div class="section-title">
            <i class="fas fa-magic"></i> Effets parallax
        </div>
        <div class="section-content">
            <p>Les effets parallax créent de la profondeur et un sentiment d'immersion.</p>

            <div class="parallax-container" id="parallaxDemo2">
                <div class="parallax-layer" data-speed="0.1" style="background: #f5f5f5; z-index: 1;">
                    <svg width="100%" height="100%">
                        <circle cx="50%" cy="50%" r="40" fill="#eee" stroke="#ddd" stroke-width="2" />
                    </svg>
                </div>
                <div class="parallax-layer" data-speed="0.4" style="z-index: 2;">
                    <svg width="100%" height="100%">
                        <circle cx="50%" cy="50%" r="25" fill="#ccc" stroke="#bbb" stroke-width="1" />
                    </svg>
                </div>
                <div class="parallax-layer" data-speed="0.7" style="z-index: 3;">
                    <svg width="100%" height="100%">
                        <circle cx="50%" cy="50%" r="15" fill="#999" />
                    </svg>
                </div>
                <p><small>Survolez l'élément pour voir l'effet parallaxe</small></p>
            </div>
        </div>
    </div>
<div class="section">
    <div class="section-container">
        <div class="expand-section-button" data-section="6-4" aria-label="Agrandir la section">
            <i class="fas fa-expand"></i>
        </div>
        <div class="section-title">
            <i class="fas fa-universal-access"></i> Accessibilité des animations
        </div>
        <div class="section-content">
            <p>Les animations doivent être conçues avec l'accessibilité en tête pour éviter problèmes avec certains utilisateurs</p>

            <div class="interactive-element">
                <div class="settings-option">
                    <input type="checkbox" id="reduceMotion">
                    <label for="reduceMotion">Réduire les animations</label>
                </div>
                <div class="settings-option">
                    <input type="checkbox" id="noFlashing">
                    <label for="noFlashing">Éviter les clignotements</label>
                </div>
                <div class="tooltip">
                    Pourquoi est-ce important ?
                    <span class="tooltip-text">Les animations excessives peuvent causer des problèmes pour les personnes atteintes de maladie de Parkinson ou d'autismes.</span>
                </div>
            </div>
        </div>
    </div>
</div>

<!-- Diapositive 7: Trois sections horizontales superposées --&gt;
&lt;div class="slide" id="slide-7" data-title="Systèmes de Stockage et Partage"&gt;
    &lt;div class="slide-title"&gt;
        Systèmes de Stockage et Partage
        &lt;span class="slide-counter-title"&gt;7/12&lt;/span&gt;
    &lt;/div&gt;
    &lt;div class="slide-content layout-three-rows"&gt;
        &lt;div class="section"&gt;
            &lt;div class="section-container"&gt;
                &lt;div class="expand-section-button" data-section="7-1" aria-label="Agrandir la section"&gt;
                    &lt;i class="fas fa-expand"&gt;&lt;/i&gt;
                &lt;/div&gt;
                &lt;div class="section-title"&gt;
                    &lt;i class="fas fa-save"&gt;&lt;/i&gt; Solutions de sauvegarde
                &lt;/div&gt;
                &lt;div class="section-content"&gt;
                    &lt;div class="interactive-element"&gt;
                        &lt;h4&gt;Options de sauvegarde disponibles&lt;/h4&gt;
                        &lt;div class="list-group"&gt;
                            &lt;ul&gt;
                                &lt;li&gt;Cloud Storage (AWS S3, Google Cloud Storage, Microsoft Azure, etc.)&lt;/li&gt;
                                &lt;li&gt;Local Backup (Time Machine, Windows Backup, etc.)&lt;/li&gt;
                                &lt;li&gt;Network Attached Storage (NAS) (Synology, QNAP, etc.)&lt;/li&gt;
                                &lt;li&gt;External Hard Drives (Western Digital, Seagate, etc.)&lt;/li&gt;
                            &lt;/ul&gt;
                        &lt;/div&gt;
                    &lt;/div&gt;
                &lt;/div&gt;
            &lt;/div&gt;
        &lt;/div&gt;
    &lt;/div&gt;
</pre>

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<div class="quiz-options">
    <div class="quiz-option" data-value="local">
        <i class="fas fa-hdd"></i> Stockage local
        <div class="quiz-option-description">Les données sont enregistrées dans le navigateur via localStorage</div>
    </div>
    <div class="quiz-option" data-value="cloud">
        <i class="fas fa-cloud"></i> Synchronisation cloud
        <div class="quiz-option-description">Les données sont synchronisées avec un compte en ligne</div>
    </div>
    <div class="quiz-option" data-value="export">
        <i class="fas fa-file-export"></i> Export de fichier
        <div class="quiz-option-description">Téléchargement local au format JSON</div>
    </div>
</div>
<div class="export-options">
    <button class="export-button" id="btnSaveProgress">
        <i class="fas fa-save"></i> Sauvegarder progression
    </button>
    <button class="export-button" id="btnLoadProgress">
        <i class="fas fa-upload"></i> Charger progression
    </button>
</div>
</div>
</div>
<div class="section">
    <div class="section-container">
        <div class="expand-section-button" data-section="7-2" aria-label="Agrandir la section">
            <i class="fas fa-expand"></i>
        </div>
        <div class="section-title">
            <i class="fas fa-share-alt"></i> Options de partage
        </div>
        <div class="section-content">
            <div class="interactive-element">
                <h4>Partager cette présentation</h4>
                <div class="export-options">
                    <button class="export-button">
                        <i class="fas fa-link"></i> Copier le lien
                    </button>
                    <button class="export-button">
                        <i class="fas fa-share-alt"></i> Partager
                    </button>
                    <button class="export-button">
                        <i class="fas fa-envelope"></i> Envoyer par email
                    </button>
                </div>
            </div>
        </div>
        <div class="qr-code">
            <img alt="QR code linking to the presentation" data-bbox="228 500 710 750"/>
            <!-- QR pattern - a simplified version -->
            <g fill="black">
                <!-- Position markers -->
                <rect x="10" y="10" width="30" height="30" />
                <rect x="15" y="15" width="20" height="20" fill="white" />
                <rect x="20" y="20" width="10" height="10" />

                <rect x="110" y="10" width="30" height="30" />
                <rect x="115" y="15" width="20" height="20" fill="white" />
                <rect x="120" y="20" width="10" height="10" />

                <rect x="10" y="110" width="30" height="30" />
                <rect x="15" y="115" width="20" height="20" fill="white" />
                <rect x="20" y="120" width="10" height="10" />

                <!-- Data pattern - simplified -->
                <rect x="50" y="10" width="10" height="10" />
                <rect x="70" y="20" width="10" height="10" />
                <rect x="90" y="30" width="10" height="10" />
                <rect x="20" y="50" width="10" height="10" />
                <rect x="40" y="60" width="10" height="10" />
                <rect x="80" y="70" width="10" height="10" />
                <rect x="30" y="90" width="10" height="10" />
                <rect x="60" y="100" width="10" height="10" />
                <rect x="90" y="90" width="10" height="10" />
                <rect x="100" y="70" width="10" height="10" />
                <rect x="110" y="120" width="10" height="10" />
            </g>
        </div>
        <p style="text-align: center;"><small>Scannez pour accéder à cette présentation</small></p>
    </div>
</div>
<div class="section">
    <div class="section-container">
        <div class="expand-section-button" data-section="7-3" aria-label="Agrandir la section">
            <i class="fas fa-expand"></i>
        </div>
        <div class="section-title">
            <i class="fas fa-file-export"></i> Options d'export
        </div>
        <div class="section-content">
            <p>Plusieurs formats d'export sont disponibles pour répondre à différents besoins.</p>
            <table class="data-table">
                <thead>
                    <tr>
                        <th>Format</th>
                        <th>Cas d'utilisation</th>
                    </tr>
                </thead>
                <tbody>
                    <tr>
                        <td>JSON</td>
                        <td>Stockage local, Synchronisation cloud, Téléchargement local au format JSON</td>
                    </tr>
                    <tr>
                        <td>CSV</td>
                        <td>Stockage local, Synchronisation cloud, Téléchargement local au format CSV</td>
                    </tr>
                    <tr>
                        <td>PDF</td>
                        <td>Synchronisation cloud, Téléchargement local au format PDF</td>
                    </tr>
                    <tr>
                        <td>PPT</td>
                        <td>Synchronisation cloud, Téléchargement local au format PPT</td>
                    </tr>
                </tbody>
            </table>
        </div>
    </div>
</div>

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2520 <th>Fonctionnalités préservées</th>
2521 </tr>
2522 </thead>
2523 <tbody>
2524 <tr>
2525 <td>PDF</td>
2526 <td>Impression, partage</td>
2527 <td>Mise en page, images</td>
2528 </tr>
2529 <tr>
2530 <td>HTML autonome</td>
2531 <td>Utilisation hors-ligne</td>
2532 <td>Toutes (sauf cloud)</td>
2533 </tr>
2534 <tr>
2535 <td>Notes texte</td>
2536 <td>Synthèse rapide</td>
2537 <td>Contenu textuel uniquement</td>
2538 </tr>
2539 <tr>
2540 <td>ZIP complet</td>
2541 <td>Archivage, migration</td>
2542 <td>Toutes</td>
2543 </tr>
2544 </tbody>
2545 </table>
2546
2547 <div class="export-options">
2548 <button class="export-button" id="btnExportHTML">
2549 <i class="fas fa-file-code"></i> Export HTML
2550 </button>
2551 <button class="export-button" id="btnExportZIP">
2552 <i class="fas fa-file-archive"></i> Export ZIP
2553 </button>
2554 </div>
2555 </div>
2556 </div>
2557 </div>
2558 </div>
2559 </div>
2560
2561 <!-- Diapositive 8: Une grande section à gauche et trois petites sections empilées à droite -->
2562 <div class="slide" id="slide-8" data-title="Fonctionnalités Interactives">
2563 <div class="slide-title">
2564   Fonctionnalités Interactives
2565   <span class="slide-counter-title">8/12</span>
2566 </div>
2567 <div class="slide-content layout-one-three">
2568 <div class="left-section">
2569   <div class="section-container">
2570     <div class="expand-section-button" data-section="8-1" aria-label="Agrandir la section">
2571       <i class="fas fa-expand"></i>
2572     </div>
2573     <div class="section-title">
2574       <i class="fas fa-tasks"></i> Systèmes d'évaluation
2575     </div>
2576     <div class="section-content">
2577       <h4>Quiz de compréhension</h4>
2578       <div class="interactive-element">
2579         <div class="quiz-container">
2580           <div class="quiz-question">Quels avantages offre une présentation monochromatique en nuances de gris ?</div>
2581           <div class="quiz-options">
2582             <div class="quiz-option" data-value="a">Elle est plus économique à imprimer</div>
2583             <div class="quiz-option" data-value="b">Elle fonctionne mieux sur les anciens navigateurs</div>
2584             <div class="quiz-option correct" data-value="c">Elle améliore l'accessibilité et met l'accent sur le
2585               <div class="quiz-option" data-value="d">Elle charge plus rapidement dans le navigateur</div>
2586             </div>
2587             <div class="quiz-feedback"></div>
2588           </div>
2589         </div>
2590       </div>
2591       <h4>Exercice pratique</h4>
2592       <p>Complétez la phrase suivante :</p>
2593       <div class="fill-blank">
2594         <div class="fill-blank-text">
2595           La présentation interactive utilise des <input type="text" class="fill-blank-input" data-answer="nuances">
2596         </div>
2597         <button class="icon-button" id="checkBlanks"><i class="fas fa-check"></i></button>
2598       </div>
2599
2600       <h4>Évaluation par glisser-déposer</h4>
2601       <div class="drag-container" id="dragElements">
2602         <div class="draggable" draggable="true" data-id="nav">Navigation</div>
2603         <div class="draggable" draggable="true" data-id="interact">Interactivité</div>
2604         <div class="draggable" draggable="true" data-id="access">Accessibilité</div>
2605         <div class="draggable" draggable="true" data-id="design">Design</div>
2606       </div>
2607       <p>Déposez les éléments dans l'ordre d'importance selon vous :</p>
2608       <div class="drop-zone" id="dropZonePriority"></div>
2609
2610       <div class="chart-container">
2611         <svg width="100%" height="150" viewBox="0 0 400 150">
2612           <text x="200" y="20" text-anchor="middle" font-size="16">Résultats des utilisateurs</text>
2613           <rect x="50" y="40" width="60" height="80" fill="#888" />
2614           <rect x="130" y="60" width="60" height="60" fill="#777" />
2615           <rect x="210" y="50" width="60" height="70" fill="#666" />
2616           <rect x="290" y="70" width="60" height="50" fill="#555" />
2617           <line x1="40" y1="120" x2="370" y2="120" stroke="#333" stroke-width="2" />
2618           <text x="80" y="140" text-anchor="middle" font-size="12">Design</text>
2619           <text x="160" y="140" text-anchor="middle" font-size="12">Interactivité</text>
2620           <text x="240" y="140" text-anchor="middle" font-size="12">Accessibilité</text>
2621           <text x="320" y="140" text-anchor="middle" font-size="12">Navigation</text>
2622         </svg>
2623       </div>
2624     </div>

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2625      </div>
2626  </div>
2627  <div class="right-sections">
2628    <div class="right-section">
2629      <div class="section-container">
2630        <div class="expand-section-button" data-section="8-2" aria-label="Agrandir la section">
2631          <i class="fas fa-expand"></i>
2632        </div>
2633        <div class="section-title">
2634          <i class="fas fa-stopwatch"></i> Chronomètre et Timer
2635        </div>
2636        <div class="section-content">
2637          <div class="timer" id="activityTimer">00:30</div>
2638          <p>Temps restant pour compléter l'exercice</p>
2639          <div class="export-options">
2640            <button class="export-button" id="startTimer">
2641              <i class="fas fa-play"></i> Démarrer
2642            </button>
2643            <button class="export-button" id="resetTimer">
2644              <i class="fas fa-redo"></i> Réinitialiser
2645            </button>
2646          </div>
2647        </div>
2648      </div>
2649    </div>
2650    <div class="right-section">
2651      <div class="section-container">
2652        <div class="expand-section-button" data-section="8-3" aria-label="Agrandir la section">
2653          <i class="fas fa-expand"></i>
2654        </div>
2655        <div class="section-title">
2656          <i class="fas fa-question-circle"></i> Aide contextuelle
2657        </div>
2658        <div class="section-content">
2659          <p>Des aides contextuelles sont disponibles tout au long de la présentation.</p>
2660          <div class="export-options">
2661            <button class="export-button" id="showHelp">
2662              <i class="fas fa-info-circle"></i> Afficher l'aide
2663            </button>
2664          </div>
2665
2666          <div class="tooltip">
2667            Conseils d'utilisation
2668            <span class="tooltip-text">Vous pouvez cliquer sur les icônes de volume pour une lecture audio du contenu
2669          </div>
2670        </div>
2671      </div>
2672    </div>
2673    <div class="right-section">
2674      <div class="section-container">
2675        <div class="expand-section-button" data-section="8-4" aria-label="Agrandir la section">
2676          <i class="fas fa-expand"></i>
2677        </div>
2678        <div class="section-title">
2679          <i class="fas fa-volume-up"></i> Retour sonore
2680        </div>
2681        <div class="section-content">
2682          <p>Des retours sonores subtils améliorent l'expérience utilisateur.</p>
2683          <div class="export-options">
2684            <button class="export-button" id="soundSuccess">
2685              <i class="fas fa-check-circle"></i> Succès
2686            </button>
2687            <button class="export-button" id="soundError">
2688              <i class="fas fa-times-circle"></i> Erreur
2689            </button>
2690            <button class="export-button" id="soundNotification">
2691              <i class="fas fa-bell"></i> Notification
2692            </button>
2693          </div>
2694          <div class="settings-option">
2695            <input type="checkbox" id="soundsEnabled" checked>
2696            <label for="soundsEnabled">Activer les sons</label>
2697          </div>
2698        </div>
2699      </div>
2700    </div>
2701  </div>
2702 </div>
2703 </div>
2704
2705 <!-- Diapositive 9: Disposition en T (une en haut, deux en bas) -->
2706 <div class="slide" id="slide-9" data-title="Performance et Connectivité">
2707   <div class="slide-title">
2708     Performance et Connectivité
2709     <span class="slide-counter-title">9/12</span>
2710   </div>
2711   <div class="slide-content layout-t-shape">
2712     <div class="top-section">
2713       <div class="section-container">
2714         <div class="expand-section-button" data-section="9-1" aria-label="Agrandir la section">
2715           <i class="fas fa-expand"></i>
2716         </div>
2717         <div class="section-title">
2718           <i class="fas fa-tachometer-alt"></i> Optimisation des performances
2719         </div>
2720         <div class="section-content">
2721           <p>Une présentation performante est essentielle pour une bonne expérience utilisateur, particulièrement sur les
2722
2723           <div class="chart-container">
2724             <svg width="100%" height="150" viewBox="0 0 400 150">
2725               <text x="200" y="20" text-anchor="middle" font-size="16">Impact des optimisations</text>
2726               <!-- Axe X -->
2727               <line x1="50" y1="120" x2="350" y2="120" stroke="#333" stroke-width="2" />
2728               <!-- Axe Y -->
2729               <line x1="50" y1="120" x2="50" y2="30" stroke="#333" stroke-width="2" />

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2730
2731
2732     <!-- Barres -->
2733     <rect x="75" y="50" width="30" height="70" fill="#555" />
2734     <rect x="125" y="80" width="30" height="40" fill="#777" />
2735     <rect x="175" y="65" width="30" height="55" fill="#666" />
2736     <rect x="225" y="40" width="30" height="80" fill="#444" />
2737     <rect x="275" y="90" width="30" height="30" fill="#888" />
2738
2739     <!-- Légendes -->
2740     <text x="90" y="135" text-anchor="middle" font-size="10">Img comp.</text>
2741     <text x="140" y="135" text-anchor="middle" font-size="10">CSS min.</text>
2742     <text x="190" y="135" text-anchor="middle" font-size="10">JS min.</text>
2743     <text x="240" y="135" text-anchor="middle" font-size="10">Lazy load</text>
2744     <text x="290" y="135" text-anchor="middle" font-size="10">Caching</text>
2745
2746 </div>
2747
2748 <table class="data-table">
2749     <thead>
2750         <tr>
2751             <th>Technique</th>
2752             <th>Impact</th>
2753             <th>Complexité</th>
2754         </tr>
2755     </thead>
2756     <tbody>
2757         <tr>
2758             <td>Compression des médias</td>
2759             <td>Élevé</td>
2760             <td>Moyen</td>
2761         </tr>
2762         <tr>
2763             <td>Chargement différé</td>
2764             <td>Élevé</td>
2765             <td>Moyen</td>
2766         </tr>
2767         <tr>
2768             <td>Minification</td>
2769             <td>Moyen</td>
2770             <td>Faible</td>
2771         </tr>
2772         <tr>
2773             <td>Mise en cache</td>
2774             <td>Moyen</td>
2775             <td>Faible</td>
2776         </tr>
2777     </tbody>
2778 </table>
2779 </div>
2780 </div>
2781 <div class="bottom-sections">
2782     <div class="bottom-left">
2783         <div class="section-container">
2784             <div class="expand-section-button" data-section="9-2" aria-label="Agrandir la section">
2785                 <i class="fas fa-expand"></i>
2786             </div>
2787             <div class="section-title">
2788                 <i class="fas fa-wifi"></i> Fonctionnalités hors-ligne
2789             </div>
2790             <div class="section-content">
2791                 <p>Cette présentation fonctionne même sans connexion internet active.</p>
2792
2793                 <div class="interactive-element">
2794                     <div class="quiz-container">
2795                         <div class="quiz-question">Quelles techniques permettent le fonctionnement hors-ligne ? (sélectionnez toutes les bonnes réponses)</div>
2796                         <div class="quiz-options">
2797                             <div class="quiz-option correct" data-value="a">Service Workers</div>
2798                             <div class="quiz-option correct" data-value="b">Cache API</div>
2799                             <div class="quiz-option" data-value="c">WebSockets</div>
2800                             <div class="quiz-option correct" data-value="d">localStorage</div>
2801                         </div>
2802                     </div>
2803                 </div>
2804
2805                 <div class="settings-option">
2806                     <input type="checkbox" id="enableOffline" checked>
2807                     <label for="enableOffline">Activer le mode hors-ligne</label>
2808                 </div>
2809
2810                 <div class="interactive-element">
2811                     <div id="connectionStatus" style="padding: 8px; border-radius: var(--border-radius); background: #ddd; text-align: center; margin-bottom: 10px">
2812                         État de la connexion : <span id="connectionStatusText">En ligne</span>
2813                     </div>
2814                 </div>
2815             </div>
2816         </div>
2817     </div>
2818     <div class="bottom-right">
2819         <div class="section-container">
2820             <div class="expand-section-button" data-section="9-3" aria-label="Agrandir la section">
2821                 <i class="fas fa-expand"></i>
2822             </div>
2823             <div class="section-title">
2824                 <i class="fas fa-bell"></i> Notifications et synchronisation
2825             </div>
2826             <div class="section-content">
2827                 <p>Les notifications permettent d'informer l'utilisateur des mises à jour et événements importants.</p>
2828
2829                 <div class="export-options">
2830                     <button class="export-button" id="requestNotif">
2831                         <i class="fas fa-bell"></i> Activer les notifications
2832                     </button>
2833                     <button class="export-button" id="testNotif">
2834                         <i class="fas fa-paper-plane"></i> Tester une notification

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2835 </button>
2836 </div>
2837
2838 <div class="settings-group">
2839     <div class="settings-group-title">Options de synchronisation</div>
2840     <div class="settings-option">
2841         <input type="checkbox" id="syncProgress" checked>
2842         <label for="syncProgress">Synchroniser la progression</label>
2843     </div>
2844     <div class="settings-option">
2845         <input type="checkbox" id="syncSettings" checked>
2846         <label for="syncSettings">Synchroniser les paramètres</label>
2847     </div>
2848     <div class="settings-option">
2849         <input type="checkbox" id="syncResults">
2850         <label for="syncResults">Synchroniser les résultats des quiz</label>
2851     </div>
2852 </div>
2853
2854 <div id="syncStatus" style="font-size: 0.9em; margin-top: 10px;">
2855     Dernière synchronisation : Il y a 5 minutes
2856 </div>
2857 </div>
2858 </div>
2859 </div>
2860 </div>
2861 </div>
2862 </div>
2863
2864 <!-- Diapositive 10: Disposition en Z -->
2865 <div class="slide" id="slide-10" data-title="Collaboration et Partage">
2866     <div class="slide-title">
2867         Collaboration et Partage
2868         <span class="slide-counter-title">10/12</span>
2869     </div>
2870     <div class="slide-content layout-z-shape">
2871         <div class="top-row">
2872             <div class="top-left">
2873                 <div class="section-container">
2874                     <div class="expand-section-button" data-section="10-1" aria-label="Agrandir la section">
2875                         <i class="fas fa-expand"></i>
2876                     </div>
2877                     <div class="section-title">
2878                         <i class="fas fa-users"></i> Création collaborative
2879                     </div>
2880                     <div class="section-content">
2881                         <p>Les présentations modernes peuvent être créées en collaboration avec plusieurs contributeurs.</p>
2882
2883                         <div class="interactive-element">
2884                             <div class="quiz-container">
2885                                 <div class="quiz-question">Quels rôles sont généralement nécessaires pour créer une présentation pro?
2886                                 <div class="quiz-options">
2887                                     <div class="quiz-option" data-value="a">Designer uniquement</div>
2888                                     <div class="quiz-option" data-value="b">Développeur uniquement</div>
2889                                     <div class="quiz-option correct" data-value="c">Équipe multidisciplinaire (designer, développeur)
2890                                 </div>
2891                             </div>
2892                         </div>
2893                     </div>
2894
2895                     <div class="top-right">
2896                         <div class="section-container">
2897                             <div class="expand-section-button" data-section="10-2" aria-label="Agrandir la section">
2898                                 <i class="fas fa-expand"></i>
2899                             </div>
2900                             <div class="section-title">
2901                                 <i class="fas fa-comments"></i> Feedback en temps réel
2902                             </div>
2903                             <div class="section-content">
2904                                 <div class="interactive-element">
2905                                     <h4>Commentaires récents</h4>
2906                                     <div style="border: 1px solid #ddd; border-radius: var(--border-radius); padding: 10px; max-height: 120px; overflow-y: scroll;">
2907                                         <div style="margin-bottom: 10px;">
2908                                             <strong>Sophie M.</strong> <small>Il y a 5 min</small>
2909                                             <p>J'apprécie beaucoup le design minimaliste en nuances de gris.</p>
2910                                         </div>
2911                                         <div style="margin-bottom: 10px;">
2912                                             <strong>Thomas L.</strong> <small>Il y a 15 min</small>
2913                                             <p>Les animations sont fluides et l'interactivité rend l'apprentissage plus engageant.</p>
2914                                         </div>
2915                                         <div>
2916                                             <strong>Julie R.</strong> <small>Il y a 32 min</small>
2917                                             <p>Pourrait-on ajouter plus d'exemples de graphiques en SVG ?</p>
2918                                         </div>
2919                                     </div>
2920                                 </div>
2921                             </div>
2922
2923                             <div class="interactive-element">
2924                                 <h4>Ajouter un commentaire</h4>
2925                                 <textarea style="width: 100%; padding: 8px; border: 1px solid var(--color-border); border-radius: var(--border-radius); font-size: inherit; font-family: inherit;">
2926                                 <button class="export-button">
2927                                     <i class="fas fa-paper-plane"></i> Envoyer
2928                                 </button>
2929                             </div>
2930                         </div>
2931                     </div>
2932                 </div>
2933             </div>
2934             <div class="bottom-row">
2935                 <div class="bottom-left">
2936                     <div class="section-container">
2937                         <div class="expand-section-button" data-section="10-3" aria-label="Agrandir la section">
2938                             <i class="fas fa-expand"></i>
2939                         </div>
2940                     </div>
2941                 </div>
2942             </div>
2943         </div>
2944     </div>
2945 
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<div class="section-title">
    <i class="fas fa-chart-pie"></i> Statistiques d'utilisation
</div>
<div class="section-content">
    <div class="chart-container">
        <img alt="Bar chart showing engagement rates across 11 slides." data-bbox="250 50 700 350"/>
        <!-- Fond du graphique -->
        <rect x="0" y="0" width="300" height="120" fill="#f9f9f9" />

        <!-- Statistiques d'utilisation -->
        <text x="150" y="20" text-anchor="middle" font-size="12" font-weight="bold">Engagement par diapositive</text>
        <!-- Barres pour chaque diapo -->
        <rect x="10" y="30" width="20" height="80" fill="#222" />
        <rect x="35" y="50" width="20" height="60" fill="#444" />
        <rect x="60" y="70" width="20" height="40" fill="#666" />
        <rect x="85" y="40" width="20" height="70" fill="#444" />
        <rect x="110" y="65" width="20" height="45" fill="#555" />
        <rect x="135" y="55" width="20" height="55" fill="#444" />
        <rect x="160" y="75" width="20" height="35" fill="#666" />
        <rect x="185" y="45" width="20" height="65" fill="#444" />
        <rect x="210" y="60" width="20" height="50" fill="#555" />
        <rect x="235" y="80" width="20" height="30" fill="#777" />
        <rect x="260" y="63" width="20" height="47" fill="#555" />

        <!-- Axe X -->
        <line x1="10" y1="110" x2="280" y2="110" stroke="#333" stroke-width="1" />

        <!-- Numéros des diapositives -->
        <text x="20" y="115" text-anchor="middle" font-size="8">1</text>
        <text x="45" y="115" text-anchor="middle" font-size="8">2</text>
        <text x="70" y="115" text-anchor="middle" font-size="8">3</text>
        <text x="95" y="115" text-anchor="middle" font-size="8">4</text>
        <text x="120" y="115" text-anchor="middle" font-size="8">5</text>
        <text x="145" y="115" text-anchor="middle" font-size="8">6</text>
        <text x="170" y="115" text-anchor="middle" font-size="8">7</text>
        <text x="195" y="115" text-anchor="middle" font-size="8">8</text>
        <text x="220" y="115" text-anchor="middle" font-size="8">9</text>
        <text x="245" y="115" text-anchor="middle" font-size="8">10</text>
        <text x="270" y="115" text-anchor="middle" font-size="8">11</text>
    </div>
</div>

<div class="data-table">
    <table>
        <thead>
            <tr>
                <th>Métrique</th>
                <th>Valeur</th>
            </tr>
        </thead>
        <tbody>
            <tr>
                <td>Temps moyen par diapo</td>
                <td>1m 45s</td>
            </tr>
            <tr>
                <td>Taux de complétion des quiz</td>
                <td>87%</td>
            </tr>
            <tr>
                <td>Taux d'abandon</td>
                <td>12%</td>
            </tr>
        </tbody>
    </table>
</div>
</div>

<div class="bottom-right">
    <div class="section-container">
        <div class="expand-section-button" data-section="10-4" aria-label="Agrandir la section">
            <i class="fas fa-expand"></i>
        </div>
        <div class="section-title">
            <i class="fas fa-share-alt"></i> Options de partage
        </div>
        <div class="section-content">
            <p>Partagez cette présentation de différentes manières :</p>
            <div class="export-options">
                <button class="export-button">
                    <i class="fas fa-link"></i> Lien direct
                </button>
                <button class="export-button">
                    <i class="fas fa-envelope"></i> Email
                </button>
            </div>
            <h4>Intégration</h4>
            <div style="background: #eee; padding: 8px; border-radius: var(--border-radius); font-family: monospace; font-size: 0.8em; margin-top: 10px;">
                &lt;iframe src="https://example.com/presentation" width="800" height="600"&gt;&lt;/iframe&gt;
            </div>
            <div class="settings-option">
                <input type="checkbox" id="allowEmbed" checked>
                <label for="allowEmbed">Autoriser l'intégration sur d'autres sites</label>
            </div>
        </div>
    </div>
</div>
</div>
</div>

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<!-- Diapositive 11: Disposition avec une section centrale et quatre coins -->
<div class="slide" id="slide-11" data-title="Outils d'Organisation">
    <div class="slide-title">
        Outils d'Organisation
        <span class="slide-counter-title">11/12</span>
    </div>
    <div class="slide-content layout-center-corners">
        <div class="center-section">
            <div class="section-container">
                <div class="expand-section-button" data-section="11-1" aria-label="Agrandir la section">
                    <i class="fas fa-expand"></i>
                </div>
                <div class="section-title">
                    <i class="fas fa-sitemap"></i> Organisation conceptuelle
                </div>
                <div class="section-content">
                    <div class="mind-map">
                        <img alt="Diagramme de carte mentale centrée sur l'organisation conceptuelle, avec des nœuds pour Connexions, Nœuds, Contenu, Design, Interaction et Partage." data-bbox="228 168 838 398"/>
                        <!-- Centre -->
                        <rect x="120" y="80" width="80" height="40" rx="5" fill="#555" />
                        <text x="160" y="105" text-anchor="middle" fill="white">Présentation</text>
                        
                        <!-- Connexions -->
                        <line x1="120" y1="100" x2="70" y2="60" stroke="#777" stroke-width="2" />
                        <line x1="200" y1="100" x2="250" y2="60" stroke="#777" stroke-width="2" />
                        <line x1="120" y1="100" x2="70" y2="140" stroke="#777" stroke-width="2" />
                        <line x1="200" y1="100" x2="250" y2="140" stroke="#777" stroke-width="2" />

                        <!-- Nœuds -->
                        <rect x="20" y="40" width="70" height="30" rx="5" fill="#777" />
                        <text x="55" y="60" text-anchor="middle" fill="white">Contenu</text>
                        
                        <rect x="230" y="40" width="70" height="30" rx="5" fill="#777" />
                        <text x="265" y="60" text-anchor="middle" fill="white">Design</text>
                        
                        <rect x="20" y="130" width="70" height="30" rx="5" fill="#777" />
                        <text x="55" y="150" text-anchor="middle" fill="white">Interaction</text>
                        
                        <rect x="230" y="130" width="70" height="30" rx="5" fill="#777" />
                        <text x="265" y="150" text-anchor="middle" fill="white">Partage</text>
                    </div>
                </div>
            </div>
        </div>
        <div class="corner top-left-corner">
            <div class="section-container">
                <div class="expand-section-button" data-section="11-2" aria-label="Agrandir la section">
                    <i class="fas fa-expand"></i>
                </div>
                <div class="section-title">
                    <i class="fas fa-project-diagram"></i> Carte mentale
                </div>
                <div class="section-content">
                    <p>Les cartes mentales sont un excellent outil pour organiser et visualiser des concepts complexes.</p>
                    <div class="export-options">
                        <button class="export-button" id="expandMindMap">
                            <i class="fas fa-expand-arrows-alt"></i> Visualiser
                        </button>
                    </div>
                </div>
            </div>
        </div>
        <div class="corner top-right-corner">
            <div class="section-container">
                <div class="expand-section-button" data-section="11-3" aria-label="Agrandir la section">
                    <i class="fas fa-expand"></i>
                </div>
                <div class="section-title">
                    <i class="fas fa-stream"></i> Frise chronologique
                </div>
                <div class="section-content">
                    <div class="timeline">
                        <div class="timeline-item">
                            <div class="timeline-date">Étape 1</div>
                            <div class="timeline-content">Conception</div>
                        </div>
                        <div class="timeline-item">
                            <div class="timeline-date">Étape 2</div>
                            <div class="timeline-content">Développement</div>
                        </div>
                        <div class="timeline-item">
                            <div class="timeline-date">Étape 3</div>
                            <div class="timeline-content">Validation</div>
                        </div>
                    </div>
                </div>
            </div>
        </div>
        <div class="corner bottom-left-corner">
            <div class="section-container">
                <div class="expand-section-button" data-section="11-4" aria-label="Agrandir la section">
                    <i class="fas fa-expand"></i>
                </div>
                <div class="section-title">
                    <i class="fas fa-table"></i> Tableau comparatif
                </div>
                <div class="section-content">
                    <div class="data-table">
                        <tbl_struct version="1">
                            <tbl_header version="1">
                                <tr>
                                    <th>Critères</th>
                                    <th>Performance A</th>
                                    <th>Performance B</th>
                                </tr>
                            </tbl_header>
                            <tbl_info cols="3" rows="2" summary="Tableau comparatif de deux performances sur deux critères." />
                            <tbl_r cells="3" ix="1" maxcspan="1" maxrspan="1" usedcols="3" />
                            <tbl_r cells="3" ix="2" maxcspan="1" maxrspan="1" usedcols="3" />
                        </tbl_struct>
                        <table border="1">
                            <thead>
                                <tr>
                                    <th>Critères</th>
                                    <th>Performance A</th>
                                    <th>Performance B</th>
                                </tr>
                            </thead>
                            <tbody>
                                <tr>
                                    <td>Critère 1</td>
                                    <td>Score A1</td>
                                    <td>Score B1</td>
                                </tr>
                            </tbody>
                        </table>
                    </div>
                </div>
            </div>
        </div>
    </div>

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3150                     <th>Avant</th>
3151                     <th>Après</th>
3152                 </tr>
3153             </thead>
3154             <tbody>
3155                 <tr>
3156                     <td>Accessibilité</td>
3157                     <td>Limitée</td>
3158                     <td>Complète</td>
3159                 </tr>
3160                 <tr>
3161                     <td>Performance</td>
3162                     <td>Moyenne</td>
3163                     <td>Optimisée</td>
3164                 </tr>
3165             </tbody>
3166         </table>
3167     </div>
3168 </div>
3169 </div>
3170 </div>
3171 <div class="corner bottom-right-corner">
3172     <div class="section-container">
3173         <div class="expand-section-button" data-section="11-5" aria-label="Agrandir la section">
3174             <i class="fas fa-expand"></i>
3175         </div>
3176         <div class="section-title">
3177             <i class="fas fa-project-diagram"></i> Organigramme
3178         </div>
3179         <div class="section-content">
3180             <svg width="100%" height="100%" viewBox="0 0 150 130">
3181                 <!-- Boîtes -->
3182                 <rect x="50" y="10" width="50" height="25" rx="5" fill="#555" />
3183                 <rect x="15" y="60" width="50" height="25" rx="5" fill="#777" />
3184                 <rect x="85" y="60" width="50" height="25" rx="5" fill="#777" />
3185                 <rect x="50" y="100" width="50" height="25" rx="5" fill="#999" />
3186
3187                 <!-- Lignes -->
3188                 <line x1="75" y1="35" x2="75" y2="50" stroke="#555" stroke-width="2" />
3189                 <line x1="75" y1="50" x2="40" y2="50" stroke="#555" stroke-width="2" />
3190                 <line x1="75" y1="50" x2="110" y2="50" stroke="#555" stroke-width="2" />
3191                 <line x1="40" y1="50" x2="40" y2="60" stroke="#555" stroke-width="2" />
3192                 <line x1="110" y1="50" x2="110" y2="60" stroke="#555" stroke-width="2" />
3193                 <line x1="40" y1="85" x2="40" y2="95" stroke="#555" stroke-width="2" />
3194                 <line x1="110" y1="85" x2="110" y2="95" stroke="#555" stroke-width="2" />
3195                 <line x1="40" y1="95" x2="75" y2="95" stroke="#555" stroke-width="2" />
3196                 <line x1="110" y1="95" x2="75" y2="95" stroke="#555" stroke-width="2" />
3197                 <line x1="75" y1="95" x2="75" y2="100" stroke="#555" stroke-width="2" />
3198
3199                 <!-- Texte -->
3200                 <text x="75" y="25" text-anchor="middle" fill="white">Concept</text>
3201                 <text x="40" y="75" text-anchor="middle" fill="white">Design</text>
3202                 <text x="110" y="75" text-anchor="middle" fill="white">Dev</text>
3203                 <text x="75" y="115" text-anchor="middle" fill="white">Produit</text>
3204             </svg>
3205         </div>
3206     </div>
3207 </div>
3208 </div>
3209 </div>
3210
3211 <!-- Diapositive 12: Disposition en croix -->
3212 <div class="slide" id="slide-12" data-title="Conclusion et Ressources">
3213     <div class="slide-title">
3214         Conclusion et Ressources
3215         <span class="slide-counter-title">12/12</span>
3216     </div>
3217     <div class="slide-content layout-cross">
3218         <div class="center-section">
3219             <div class="section-container">
3220                 <div class="expand-section-button" data-section="12-1" aria-label="Agrandir la section">
3221                     <i class="fas fa-expand"></i>
3222                 </div>
3223                 <div class="section-title">
3224                     <i class="fas fa-check-circle"></i> Points clés
3225                 </div>
3226                 <div class="section-content">
3227                     <ul>
3228                         <li>Design en nuances de gris pour une meilleure accessibilité</li>
3229                         <li>Structure modulaire adaptable à différents contenus</li>
3230                         <li>Interactivité pour un engagement accru</li>
3231                         <li>Animations subtiles et fonctionnelles</li>
3232                         <li>Compatibilité multi-plateformes</li>
3233                     </ul>
3234                 </div>
3235             </div>
3236         </div>
3237         <div class="top-section">
3238             <div class="section-container">
3239                 <div class="expand-section-button" data-section="12-2" aria-label="Agrandir la section">
3240                     <i class="fas fa-expand"></i>
3241                 </div>
3242                 <div class="section-title">
3243                     <i class="fas fa-book"></i> Ressources
3244                 </div>
3245                 <div class="section-content">
3246                     <div class="interactive-element">
3247                         <h4>Bibliographie</h4>
3248                         <ul>
3249                             <li>Design d'interfaces en nuances de gris (M. Dupont, 2024)</li>
3250                             <li>Guide d'accessibilité web (W3C, 2023)</li>
3251                             <li>Techniques d'interactivité pour présentations (K. Martin, 2024)</li>
3252                         </ul>
3253                     </div>
3254                 </div>

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<div class="export-options">
    <button class="export-button" id="downloadResources">
        <i class="fas fa-download"></i> Télécharger les ressources
    </button>
</div>
</div>
<div class="right-section">
    <div class="section-container">
        <div class="expand-section-button" data-section="12-3" aria-label="Agrandir la section">
            <i class="fas fa-expand"></i>
        </div>
        <div class="section-title">
            <i class="fas fa-certificate"></i> Certification
        </div>
        <div class="section-content">
            <p>Complétez tous les quiz pour obtenir votre certificat.</p>
        </div>
        <div class="chart-container">
            <img alt="Progression circulaire" data-bbox="228 198 598 241"/>
            <!-- Indicateur de progression circulaire -->
            <circle cx="50" cy="40" r="30" fill="none" stroke="#ddd" stroke-width="8" />
            <circle cx="50" cy="40" r="30" fill="none" stroke="#555" stroke-width="8" stroke-dasharray="188.5" stroke-dashoffset="75" />
            <text x="50" y="45" text-anchor="middle" font-size="16">75%</text>
        </div>
        <!-- Badge -->
        <div class="badge">
            <img alt="Badge de certification" data-bbox="228 261 598 311"/>
            <!-- Badge -->
            <g transform="translate(120, 40)">
                <circle cx="0" cy="0" r="25" fill="#666" />
                <path d="M-15,0 L-5,10 L15,-10 M15,-10 L15,10 L-15,10" stroke="white" stroke-width="3" fill="none" />
            </g>
        </div>
    </div>
    <div class="export-options">
        <button class="export-button" id="getCertificate">
            <i class="fas fa-award"></i> Obtenir le certificat
        </button>
    </div>
</div>
<div class="bottom-section">
    <div class="section-container">
        <div class="expand-section-button" data-section="12-4" aria-label="Agrandir la section">
            <i class="fas fa-expand"></i>
        </div>
        <div class="section-title">
            <i class="fas fa-comments"></i> Feedback
        </div>
        <div class="section-content">
            <p>Votre avis nous aide à améliorer cette présentation.</p>
        </div>
        <div class="interactive-element">
            <div class="quiz-options">
                <div class="quiz-option" data-value="5">Excellent</div>
                <div class="quiz-option" data-value="4">Très bien</div>
                <div class="quiz-option" data-value="3">Bien</div>
                <div class="quiz-option" data-value="2">Moyen</div>
                <div class="quiz-option" data-value="1">À améliorer</div>
            </div>
        </div>
        <div style="margin-top: 10px;">
            <button class="export-button">
                <i class="fas fa-paper-plane"></i> Envoyer feedback
            </button>
        </div>
    </div>
</div>
<div class="left-section">
    <div class="section-container">
        <div class="expand-section-button" data-section="12-5" aria-label="Agrandir la section">
            <i class="fas fa-expand"></i>
        </div>
        <div class="section-title">
            <i class="fas fa-thumbs-up"></i> Prochaines étapes
        </div>
        <div class="section-content">
            <div class="interactive-element">
                <h4>Modules complémentaires</h4>
                <ul>
                    <li>Design avancé en nuances de gris</li>
                    <li>Animation et effets visuels</li>
                    <li>Techniques d'interactivité avancées</li>
                    <li>Optimisation pour appareils mobiles</li>
                </ul>
            </div>
            <div class="export-options">
                <button class="export-button" id="nextModules">
                    <i class="fas fa-arrow-right"></i> Explorer les modules
                </button>
            </div>
        </div>
    </div>
</div>
<div class="bottom-banner">
    <div class="bottom-left">AMZAL Kévin</div>

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3360 <div class="bottom-center">
3361     <div class="nav-button prev-button inactive"></div>
3362     <div id="slide-counter">1/12</div>
3363     <div class="nav-button next-button"></div>
3364 </div>
3365     <div class="bottom-right">Technologie Éducative</div>
3366 </div>
3367
3368 <!-- Modal pour afficher une section en plein écran -->
3369 <div class="section-modal" id="sectionModal">
3370     <div class="section-modal-content">
3371         <div class="close-modal-button" id="closeModal">
3372             <i class="fas fa-times"></i>
3373         </div>
3374         <div class="section-modal-title" id="sectionModalTitle">Titre de la section</div>
3375         <div class="section-modal-body" id="sectionModalBody">
3376             Contenu de la section
3377         </div>
3378     </div>
3379 </div>
3380
3381 <!-- Panneau d'aide contextuelle -->
3382 <div class="help-panel" id="helpPanel">
3383     <span class="close-help" id="closeHelp"><i class="fas fa-times"></i></span>
3384     <h3>Aide</h3>
3385     <p>Comment naviguer dans cette présentation :</p>
3386     <ul>
3387         <li>Utilisez les flèches gauche/droite pour naviguer entre les diapositives</li>
3388         <li>Cliquez sur l'icône <i class="fas fa-expand"></i> pour agrandir une section</li>
3389         <li>Appuyez sur F pour le plein écran</li>
3390         <li>Utilisez le sommaire pour accéder directement à une diapositive</li>
3391     </ul>
3392     <p>Fonctionnalités d'accessibilité :</p>
3393     <ul>
3394         <li>Cliquez sur <i class="fas fa-volume-up"></i> pour la lecture audio</li>
3395         <li>Activez le mode contraste élevé dans les paramètres</li>
3396         <li>Redimensionnez le texte avec Ctrl+ et Ctrl-</li>
3397     </ul>
3398 </div>
3399
3400 <!-- Notification -->
3401 <div class="notification" id="notification">Notification</div>
3402
3403 <!-- Indicateur de chargement -->
3404 <div class="loading-indicator" id="loadingIndicator">
3405     <div class="loading-spinner"></div>
3406     <div>Chargement en cours...</div>
3407 </div>
3408 </div>
3409
3410 <!-- Bibliothèques JavaScript -->
3411 <script src="https://cdn.jsdelivr.net/npm/reveal.js@dist/reveal.min.js"></script>
3412 <script src="https://cdn.jsdelivr.net/npm/chart.js@3.7.0/dist/chart_min.js"></script>
3413 <script src="https://cdn.jsdelivr.net/npm/marked/marked_min.js"></script>
3414 <script src="https://cdn.jsdelivr.net/npm/highlight.js@11.7.0/lib/highlight.js"></script>
3415
3416 <script>
3417     // Variables globales
3418     let currentSlide = 0;
3419     const slides = document.querySelectorAll('.slide');
3420     const totalSlides = slides.length;
3421     const prevButtons = document.querySelectorAll('.prev-button');
3422     const nextButtons = document.querySelectorAll('.next-button');
3423     const slideCounter = document.getElementById('slide-counter');
3424     const slideCounterFloating = document.getElementById('slide-counter-floating');
3425     const progressBar = document.getElementById('progressBar');
3426
3427     // Variables d'état
3428     let summaryVisible = false;
3429     let helpVisible = false;
3430     let bannersVisible = true;
3431     let settingsVisible = false;
3432     let soundsEnabled = true;
3433     let animationsEnabled = true;
3434     let darkMode = false;
3435     let userScore = 0;
3436     let lastSavedProgress = null;
3437
3438     // Mise à jour de l'affichage du compteur de diapositives
3439     function updateSlideCounter() {
3440         const counterText = `${currentSlide + 1}/${totalSlides}`;
3441         slideCounter.textContent = counterText;
3442         slideCounterFloating.textContent = counterText;
3443
3444         // Mise à jour de la barre de progression
3445         const progressPercent = ((currentSlide + 1) / totalSlides) * 100;
3446         progressBar.style.width = `${progressPercent}%`;
3447     }
3448
3449     // Mise à jour de l'état des boutons de navigation
3450     function updateNavButtons() {
3451         if (currentSlide === 0) {
3452             prevButtons.forEach(btn => btn.classList.add('inactive'));
3453         } else {
3454             prevButtons.forEach(btn => btn.classList.remove('inactive'));
3455         }
3456
3457         if (currentSlide === totalSlides - 1) {
3458             nextButtons.forEach(btn => btn.classList.add('inactive'));
3459         } else {
3460             nextButtons.forEach(btn => btn.classList.remove('inactive'));
3461         }
3462     }
3463
3464     // Afficher la diapositive spécifiée

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3465 function showSlide(index) {
3466     // Mettre à jour la classe pour l'animation
3467     slides.forEach(slide => {
3468         slide.classList.remove('active', 'prev');
3469     });
3470
3471     if (index > currentSlide) {
3472         // Animation vers la droite
3473         for (let i = 0; i < slides.length; i++) {
3474             if (i < index) {
3475                 slides[i].classList.add('prev');
3476             }
3477         }
3478     }
3479
3480     // Afficher la diapositive actuelle
3481     slides[index].classList.add('active');
3482
3483     // Mettre à jour le compteur et les boutons
3484     currentSlide = index;
3485     updateSlideCounter();
3486     updateNavButtons();
3487
3488     // Mettre à jour la mini-carte
3489     updateSlideMap();
3490
3491     // Mettre à jour le sommaire si visible
3492     if (summaryVisible) {
3493         updateSummaryActiveItem();
3494     }
3495
3496     // Sauvegarder la progression
3497     saveProgress();
3498 }
3499
3500 // Navigation vers la diapositive précédente
3501 prevButtons.forEach(button => {
3502     button.addEventListener('click', () => {
3503         if (currentSlide > 0) {
3504             currentSlide--;
3505             showSlide(currentSlide);
3506             playSound('navigation');
3507         }
3508     });
3509 });
3510
3511 // Navigation vers la diapositive suivante
3512 nextButtons.forEach(button => {
3513     button.addEventListener('click', () => {
3514         if (currentSlide < totalSlides - 1) {
3515             currentSlide++;
3516             showSlide(currentSlide);
3517             playSound('navigation');
3518         }
3519     });
3520 });
3521
3522 // Navigation au clavier
3523 document.addEventListener('keydown', (event) => {
3524     // Éviter la navigation au clavier si un élément de formulaire est focus
3525     if (document.activeElement.tagName === 'INPUT' ||
3526         document.activeElement.tagName === 'TEXTAREA') {
3527         return;
3528     }
3529
3530     if (event.key === 'ArrowLeft' && currentSlide > 0) {
3531         currentSlide--;
3532         showSlide(currentSlide);
3533         playSound('navigation');
3534     } else if ((event.key === 'ArrowRight' || event.key === ' ') && currentSlide < totalSlides - 1) {
3535         currentSlide++;
3536         showSlide(currentSlide);
3537         playSound('navigation');
3538     } else if (event.key === 'Escape') {
3539         if (document.fullscreenElement) {
3540             exitFullscreen();
3541         } else if (sectionModal.style.display === 'flex') {
3542             sectionModal.style.display = 'none';
3543         }
3544     } else if (event.key === 'f' || event.key === 'F') {
3545         toggleFullscreen();
3546     } else if (event.key === 'h' || event.key === 'H') {
3547         toggleHelp();
3548     }
3549 });
3550
3551 // Navigation tactile
3552 let touchStartX = 0;
3553 let touchEndX = 0;
3554
3555 document.addEventListener('touchstart', (event) => {
3556     touchStartX = event.changedTouches[0].screenX;
3557 });
3558
3559 document.addEventListener('touchend', (event) => {
3560     touchEndX = event.changedTouches[0].screenX;
3561     handleSwipe();
3562 });
3563
3564 function handleSwipe() {
3565     const minSwipeDistance = 50;
3566     if (touchEndX < touchStartX - minSwipeDistance && currentSlide < totalSlides - 1) {
3567         // Swipe gauche -> diapo suivante
3568         currentSlide++;
3569         showSlide(currentSlide);

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3570
3571     playSound('navigation');
3572 } else if (touchEndX > touchStartX + minSwipeDistance && currentSlide > 0) {
3573     // Swipe droite -> diapo précédente
3574     currentSlide--;
3575     showSlide(currentSlide);
3576     playSound('navigation');
3577 }
3578
3579 // Gérer l'effet parallaxe
3580 function setupParallax() {
3581     const parallaxContainers = document.querySelectorAll('.parallax-container');
3582
3583     parallaxContainers.forEach(container => {
3584         container.addEventListener('mousemove', (event) => {
3585             if (!animationsEnabled) return;
3586
3587             const rect = container.getBoundingClientRect();
3588             const x = event.clientX - rect.left;
3589             const y = event.clientY - rect.top;
3590             const centerX = rect.width / 2;
3591             const centerY = rect.height / 2;
3592
3593             const layers = container.querySelectorAll('.parallax-layer');
3594             layers.forEach(layer => {
3595                 const speed = parseFloat(layer.getAttribute('data-speed')) || 0.5;
3596                 const offsetX = (x - centerX) * speed;
3597                 const offsetY = (y - centerY) * speed;
3598
3599                 layer.style.transform = `translate(${offsetX}px, ${offsetY}px)`;
3600             });
3601         });
3602     });
3603
3604     container.addEventListener('mouseleave', () => {
3605         const layers = container.querySelectorAll('.parallax-layer');
3606         layers.forEach(layer => {
3607             layer.style.transform = 'translate(0, 0)';
3608         });
3609     });
3610 };
3611
3612 // Mise à jour de l'heure en temps réel
3613 function updateDateTime() {
3614     const now = new Date();
3615     const year = now.getFullYear();
3616     const month = String(now.getMonth() + 1).padStart(2, '0');
3617     const day = String(now.getDate()).padStart(2, '0');
3618     const hours = String(now.getHours()).padStart(2, '0');
3619     const minutes = String(now.getMinutes()).padStart(2, '0');
3620     const seconds = String(now.getSeconds()).padStart(2, '0');
3621
3622     const formattedDateTime = `${year}-${month}-${day} ${hours}:${minutes}:${seconds}`;
3623     document.getElementById('current-datetime').textContent = formattedDateTime;
3624 }
3625
3626 // Générer et initialiser la mini-carte des diapositives
3627 function setupSlideMap() {
3628     const slideMap = document.getElementById('slideMap');
3629     slideMap.innerHTML = '';
3630
3631     slides.forEach((_, index) => {
3632         const item = document.createElement('div');
3633         item.className = 'slide-map-item';
3634         if (index === currentSlide) item.classList.add('active');
3635
3636         item.addEventListener('click', () => {
3637             showSlide(index);
3638             playSound('navigation');
3639         });
3640
3641         slideMap.appendChild(item);
3642     });
3643 }
3644
3645 // Mettre à jour l'état de la mini-carte
3646 function updateSlideMap() {
3647     const items = document.querySelectorAll('.slide-map-item');
3648     items.forEach((item, index) => {
3649         if (index === currentSlide) {
3650             item.classList.add('active');
3651         } else {
3652             item.classList.remove('active');
3653         }
3654     });
3655 }
3656
3657 // Générer le sommaire
3658 function generateSummary() {
3659     // Vider le sommaire actuel
3660     const summaryList = document.querySelector('.summary-list');
3661     summaryList.innerHTML = '';
3662
3663     // Générer les éléments du sommaire
3664     slides.forEach((slide, index) => {
3665         const title = slide.getAttribute('data-title');
3666         const item = document.createElement('div');
3667         item.className = 'summary-item';
3668         if (index === currentSlide) item.classList.add('current');
3669         item.textContent = `${index + 1}. ${title}`;
3670
3671         // Ajouter un événement pour naviguer vers la diapositive
3672         item.addEventListener('click', () => {
3673             showSlide(index);
3674             toggleSummary(); // Fermer le sommaire après avoir cliqué

```

```

3675     playSound('navigation');
3676   });
3677
3678   summaryList.appendChild(item);
3679 }
3680
3681 // Mettre à jour l'élément actif dans le sommaire
3682 function updateSummaryActiveItem() {
3683   const summaryItems = document.querySelectorAll('.summary-item');
3684   summaryItems.forEach((item, index) => {
3685     if (index === currentSlide) {
3686       item.classList.add('current');
3687     } else {
3688       item.classList.remove('current');
3689     }
3690   });
3691 }
3692
3693 // Afficher ou masquer le sommaire
3694 function toggleSummary() {
3695   const summaryPanel = document.getElementById('summaryPanel');
3696   const btnSummary = document.getElementById('btnSummary');
3697
3698   if (summaryVisible) {
3699     summaryPanel.style.display = 'none';
3700     btnSummary.classList.remove('active');
3701   } else {
3702     generateSummary(); // Mettre à jour le sommaire avant de l'afficher
3703     summaryPanel.style.display = 'block';
3704     btnSummary.classList.add('active');
3705   }
3706
3707   // Fermer les autres panneaux
3708   if (settingsVisible) toggleSettings();
3709   if (helpVisible) toggleHelp();
3710 }
3711 summaryVisible = !summaryVisible;
3712 playSound('ui');
3713 }
3714
3715 // Afficher ou masquer le panneau de paramètres
3716 function toggleSettings() {
3717   const settingsPanel = document.getElementById('settingsPanel');
3718   const btnSettings = document.getElementById('btnSettings');
3719
3720   if (settingsVisible) {
3721     settingsPanel.style.display = 'none';
3722     btnSettings.classList.remove('active');
3723   } else {
3724     settingsPanel.style.display = 'block';
3725     btnSettings.classList.add('active');
3726   }
3727
3728   // Fermer les autres panneaux
3729   if (summaryVisible) toggleSummary();
3730   if (helpVisible) toggleHelp();
3731 }
3732 settingsVisible = !settingsVisible;
3733 playSound('ui');
3734 }
3735
3736 // Afficher ou masquer l'aide
3737 function toggleHelp() {
3738   const helpPanel = document.getElementById('helpPanel');
3739   const btnHelp = document.getElementById('btnHelp');
3740
3741   if (helpVisible) {
3742     helpPanel.style.display = 'none';
3743     btnHelp.classList.remove('active');
3744   } else {
3745     helpPanel.style.display = 'block';
3746     btnHelp.classList.add('active');
3747   }
3748
3749   // Fermer les autres panneaux
3750   if (summaryVisible) toggleSummary();
3751   if (settingsVisible) toggleSettings();
3752 }
3753 helpVisible = !helpVisible;
3754 playSound('ui');
3755 }
3756
3757 // Fonction pour passer en plein écran
3758 function toggleFullscreen() {
3759   const btnFullscreen = document.getElementById('btnFullscreen');
3760
3761   if (!document.fullscreenElement) {
3762     if (document.documentElement.requestFullscreen) {
3763       document.documentElement.requestFullscreen();
3764       btnFullscreen.innerHTML = '<i class="fas fa-compress"></i>';
3765       btnFullscreen.title = 'Quitter le mode plein écran';
3766     }
3767   } else {
3768     exitFullscreen();
3769   }
3770
3771   playSound('ui');
3772 }
3773
3774 // Fonction pour quitter le plein écran
3775 function exitFullscreen() {
3776   const btnFullscreen = document.getElementById('btnFullscreen');
3777
3778   if (document.exitFullscreen) {
3779     document.exitFullscreen();
3780     btnFullscreen.innerHTML = '<i class="fas fa-expand"></i>';
3781     btnFullscreen.title = 'Mode plein écran';

```

```

3780 }
3781 }
3782
3783 // Fonction pour afficher/masquer les bandeaux
3784 function toggleBanners() {
3785     const mainContainer = document.getElementById('mainContainer');
3786     const btnToggleBanners = document.getElementById('btnToggleBanners');
3787
3788     if (bannersVisible) {
3789         mainContainer.classList.add('hide-banners');
3790         btnToggleBanners.innerHTML = '<i class="fas fa-eye"></i>';
3791         btnToggleBanners.title = 'Afficher les bandeaux';
3792     } else {
3793         mainContainer.classList.remove('hide-banners');
3794         btnToggleBanners.innerHTML = '<i class="fas fa-eye-slash"></i>';
3795         btnToggleBanners.title = 'Masquer les bandeaux';
3796     }
3797     bannersVisible = !bannersVisible;
3798     playSound('ui');
3799 }
3800
3801 // Mode sombre/clair
3802 function toggleDarkMode() {
3803     const htmlElement = document.documentElement;
3804
3805     if (darkMode) {
3806         htmlElement.removeAttribute('data-theme');
3807     } else {
3808         htmlElement.setAttribute('data-theme', 'dark');
3809     }
3810
3811     darkMode = !darkMode;
3812     playSound('ui');
3813 }
3814
3815 // Gestion du multilingue
3816 function setupLanguageSelector() {
3817     const btnLanguage = document.getElementById('btnLanguage');
3818     const languageMenu = document.getElementById('languageMenu');
3819     const languageOptions = document.querySelectorAll('.language-option');
3820
3821     btnLanguage.addEventListener('click', () => {
3822         languageMenu.classList.toggle('show');
3823         playSound('ui');
3824     });
3825
3826     languageOptions.forEach(option => {
3827         option.addEventListener('click', () => {
3828             const lang = option.getAttribute('data-lang');
3829             changeLanguage(lang);
3830             languageMenu.classList.remove('show');
3831             showNotification(`Langue changée en : ${option.textContent}`);
3832         });
3833     });
3834
3835 // Fermer le menu si on clique ailleurs
3836 document.addEventListener('click', (event) => {
3837     if (!btnLanguage.contains(event.target) && !languageMenu.contains(event.target)) {
3838         languageMenu.classList.remove('show');
3839     }
3840 });
3841 }
3842
3843 // Changer la langue de l'interface
3844 function changeLanguage(lang) {
3845     // Fonction factice pour l'exemple
3846     console.log(`Changement de langue vers : ${lang}`);
3847     playSound('success');
3848     // Ici on pourrait charger des traductions depuis un fichier JSON
3849 }
3850
3851 // Initialisation des quiz
3852 function setupQuizzes() {
3853     const quizOptions = document.querySelectorAll('.quiz-option');
3854
3855     quizOptions.forEach(option => {
3856         option.addEventListener('click', () => {
3857             // Trouver les options du même groupe
3858             const parentContainer = option.closest('.quiz-options');
3859             const siblingOptions = parentContainer.querySelectorAll('.quiz-option');
3860
3861             // Désélectionner les autres options
3862             siblingOptions.forEach(sib => sib.classList.remove('selected'));
3863
3864             // Sélectionner l'option cliquée
3865             option.classList.add('selected');
3866
3867             // Vérifier si l'option est correcte (si applicable)
3868             if (option.classList.contains('correct')) {
3869                 option.classList.add('correct');
3870                 playSound('success');
3871                 updateScore(10); // Ajouter des points
3872
3873                 // Afficher feedback si présent
3874                 const feedback = option.closest('.quiz-container').querySelector('.quiz-feedback');
3875                 if (feedback) {
3876                     feedback.style.display = 'block';
3877                     feedback.textContent = "Bonne réponse !";
3878                     feedback.style.backgroundColor = "rgba(100, 100, 100, 0.3)";
3879                 }
3880             } else if (option.closest('.quiz-container').querySelector('.correct')) {
3881                 // C'est un quiz avec réponses correctes/incorrectes
3882                 option.classList.add('incorrect');
3883                 playSound('error');
3884             }
3885         });
3886     });
3887 }

```

```

3885 // Afficher feedback si présent
3886 const feedback = option.closest('.quiz-container').querySelector('.quiz-feedback');
3887 if (feedback) {
3888     feedback.style.display = 'block';
3889     feedback.textContent = "Essayez encore...";
3890     feedback.style.backgroundColor = "rgba(150, 150, 150, 0.3)";
3891 }
3892 } else {
3893     // C'est un quiz de préférence, pas de bonne/mauvaise réponse
3894     playSound('ui');
3895 }
3896 });
3897 });
3898 }
3899
3900 // Mise en place des fonctionnalités de glisser-déposer
3901 function setupDragAndDrop() {
3902     const draggables = document.querySelectorAll('.draggable');
3903     const dropZones = document.querySelectorAll('.drop-zone');
3904
3905     draggables.forEach(draggable => {
3906         draggable.addEventListener('dragstart', (e) => {
3907             draggable.classList.add('dragging');
3908             e.dataTransfer.setData('text/plain', draggable.getAttribute('data-id'));
3909         });
3910
3911         draggable.addEventListener('dragend', () => {
3912             draggable.classList.remove('dragging');
3913         });
3914     });
3915
3916     dropZones.forEach(zone => {
3917         zone.addEventListener('dragover', (e) => {
3918             e.preventDefault();
3919             zone.classList.add('over');
3920         });
3921
3922         zone.addEventListener('dragleave', () => {
3923             zone.classList.remove('over');
3924         });
3925
3926         zone.addEventListener('drop', (e) => {
3927             e.preventDefault();
3928             zone.classList.remove('over');
3929             const id = e.dataTransfer.getData('text/plain');
3930             const draggedElement = document.querySelector(`.draggable[data-id="${id}"]`);
3931
3932             if (draggedElement) {
3933                 // Créer clone pour la zone de dépôt
3934                 const clone = draggedElement.cloneNode(true);
3935                 clone.setAttribute('draggable', 'false');
3936                 clone.classList.remove('dragging');
3937                 zone.appendChild(clone);
3938                 playSound('success');
3939                 updateScore(5);
3940             }
3941         });
3942     });
3943 }
3944
3945 // Initialisation des textes à trous
3946 function setupFillBlanks() {
3947     const checkButtons = document.querySelectorAll('#checkTypo, #checkBlanks');
3948
3949     checkButtons.forEach(button => {
3950         button.addEventListener('click', () => {
3951             const container = button.closest('.fill-blank');
3952             const inputs = container.querySelectorAll('.fill-blank-input');
3953             let allCorrect = true;
3954
3955             inputs.forEach(input => {
3956                 const userAnswer = input.value.trim().toLowerCase();
3957                 const correctAnswer = input.getAttribute('data-answer').toLowerCase();
3958
3959                 if (userAnswer === correctAnswer) {
3960                     input.style.borderBottom = '2px solid #666'; // Correct en nuances de gris
3961                 } else {
3962                     input.style.borderBottom = '2px solid #999'; // Incorrect en nuances de gris
3963                     allCorrect = false;
3964                 }
3965             });
3966
3967             if (allCorrect) {
3968                 playSound('success');
3969                 updateScore(20);
3970                 showNotification('Toutes les réponses sont correctes !');
3971             } else {
3972                 playSound('error');
3973             }
3974         });
3975     });
3976 }
3977
3978 // Configuration du système de score
3979 function setupScoreSystem() {
3980     const scoreDisplay = document.getElementById('scoreDisplay');
3981     const scoreValue = document.getElementById('scoreValue');
3982
3983     // Réinitialiser le score
3984     userScore = 0;
3985     scoreValue.textContent = userScore;
3986
3987     // Afficher le score si activé dans les paramètres
3988     const showScoreCheckbox = document.getElementById('settingShowTimer');
3989     if (showScoreCheckbox) {

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3990     showScoreCheckbox.addEventListener('change', () => {
3991         scoreDisplay.style.display = showScoreCheckbox.checked ? 'block' : 'none';
3992     });
3993 }
3994
3995 // Mettre à jour le score
3996 function updateScore(points) {
3997     const scoreValue = document.getElementById('scoreValue');
3998     userScore += points;
3999     scoreValue.textContent = userScore;
4000
4001     // Enregistrer le score dans localStorage
4002     if (window.localStorage) {
4003         localStorage.setItem('presentationScore', userScore);
4004     }
4005 }
4006
4007
4008 // Fonction pour jouer des sons d'interface
4009 function playSound(type) {
4010     if (!soundsEnabled) return;
4011
4012     // Cette fonction simule la lecture de sons
4013     // Dans une implémentation réelle, on utiliserait l'API Web Audio
4014     console.log(`Son joué : ${type}`);
4015
4016     // Exemple avec retour audio simulé
4017     const frequencies = {
4018         'navigation': 330,
4019         'success': 523.25,
4020         'error': 196,
4021         'notification': 392,
4022         'ui': 261.63
4023     };
4024
4025     try {
4026         const audioCtx = new (window.AudioContext || window.webkitAudioContext)();
4027         const oscillator = audioCtx.createOscillator();
4028         const gainNode = audioCtx.createGain();
4029
4030         oscillator.type = 'sine';
4031         oscillator.frequency.value = frequencies[type] || 261.63;
4032         gainNode.gain.value = 0.1;
4033
4034         oscillator.connect(gainNode);
4035         gainNode.connect(audioCtx.destination);
4036
4037         oscillator.start();
4038         gainNode.gain.exponentialRampToValueAtTime(0.00001, audioCtx.currentTime + 0.5);
4039
4040         setTimeout(() => {
4041             oscillator.stop();
4042         }, 500);
4043     } catch (e) {
4044         console.log('Audio non supporté');
4045     }
4046 }
4047
4048 // Mise en place du système de lecture audio du texte
4049 function setupTextToSpeech() {
4050     const ttsButtons = document.querySelectorAll('.text-to-speech');
4051
4052     ttsButtons.forEach(button => {
4053         button.addEventListener('click', () => {
4054             const targetId = button.getAttribute('data-target');
4055             const textElement = document.getElementById(targetId);
4056
4057             if (textElement && window.speechSynthesis) {
4058                 const text = textElement.textContent;
4059                 const utterance = new SpeechSynthesisUtterance(text);
4060                 utterance.lang = 'fr-FR';
4061                 window.speechSynthesis.cancel(); // Arrêter toute lecture en cours
4062                 window.speechSynthesis.speak(utterance);
4063
4064                 button.innerHTML = '<i class="fas fa-stop"></i>';
4065                 button.setAttribute('data-playing', 'true');
4066
4067                 utterance.onend = () => {
4068                     button.innerHTML = '<i class="fas fa-volume-up"></i>';
4069                     button.removeAttribute('data-playing');
4070                 };
4071
4072                 // Pour arrêter la lecture en cours
4073                 button.addEventListener('click', function stopSpeech() {
4074                     if (button.getAttribute('data-playing') === 'true') {
4075                         window.speechSynthesis.cancel();
4076                         button.innerHTML = '<i class="fas fa-volume-up"></i>';
4077                         button.removeAttribute('data-playing');
4078                         button.removeEventListener('click', stopSpeech);
4079                     }
4080                 });
4081             }
4082
4083             playSound('ui');
4084         });
4085     });
4086 }
4087
4088 // Initialisation du chronomètre/timer
4089 function setupTimers() {
4090     const activityTimer = document.getElementById('activityTimer');
4091     const sectionTimer = document.getElementById('sectionTimer');
4092     const startTimer = document.getElementById('startTimer');
4093     const resetTimer = document.getElementById('resetTimer');
4094

```

```

4095 let activityTimerInterval;
4096 let activityTimeLeft = 30;
4097 let sectionTimeElapsed = 0;
4098
4099 // Timer de section (compte à rebours)
4100 if (sectionTimer) {
4101     setInterval(() => {
4102         sectionTimeElapsed++;
4103         const minutes = Math.floor(sectionTimeElapsed / 60);
4104         const seconds = sectionTimeElapsed % 60;
4105         sectionTimer.textContent = `${String(minutes).padStart(2, '0')}:${String(seconds).padStart(2, '0')}`;
4106     }, 1000);
4107 }
4108
4109 // Timer d'activité (compte à rebours)
4110 if (startTimer && resetTimer && activityTimer) {
4111     startTimer.addEventListener('click', () => {
4112         clearInterval(activityTimerInterval);
4113         activityTimerInterval = setInterval(() => {
4114             activityTimeLeft--;
4115             if (activityTimeLeft <= 0) {
4116                 clearInterval(activityTimerInterval);
4117                 activityTimeLeft = 0;
4118                 playSound('notification');
4119                 showNotification('Temps écoulé !');
4120             }
4121
4122             const seconds = String(activityTimeLeft % 60).padStart(2, '0');
4123             activityTimer.textContent = `00:${seconds}`;
4124         }, 1000);
4125
4126         playSound('ui');
4127     });
4128
4129     resetTimer.addEventListener('click', () => {
4130         clearInterval(activityTimerInterval);
4131         activityTimeLeft = 30;
4132         activityTimer.textContent = '00:30';
4133         playSound('ui');
4134     });
4135 }
4136 }
4137
4138 // Initialisation des images avec zoom
4139 function setupZoomableImages() {
4140     const zoomContainers = document.querySelectorAll('.zoomable-image-container');
4141
4142     zoomContainers.forEach(container => {
4143         container.addEventListener('click', () => {
4144             container.classList.toggle('zoomed');
4145             playSound('ui');
4146         });
4147     });
4148 }
4149
4150 // Configuration des animations de démonstration
4151 function setupAnimationDemo() {
4152     const demoFade = document.getElementById('demoFade');
4153     const demoSlide = document.getElementById('demoSlide');
4154     const demoScale = document.getElementById('demoScale');
4155     const animationDemo = document.getElementById('animationDemo');
4156
4157     if (demoFade && animationDemo) {
4158         demoFade.addEventListener('click', () => {
4159             if (!animationsEnabled) return;
4160
4161             animationDemo.style.opacity = '0';
4162             setTimeout(() => {
4163                 animationDemo.textContent = 'Animation de fondu';
4164                 animationDemo.style.opacity = '1';
4165             }, 500);
4166             playSound('ui');
4167         });
4168     }
4169
4170     if (demoSlide && animationDemo) {
4171         demoSlide.addEventListener('click', () => {
4172             if (!animationsEnabled) return;
4173
4174             animationDemo.style.transform = 'translateX(-100%)';
4175             animationDemo.style.opacity = '0';
4176             setTimeout(() => {
4177                 animationDemo.textContent = 'Animation de glissement';
4178                 animationDemo.style.transform = 'translateX(0)';
4179                 animationDemo.style.opacity = '1';
4180             }, 500);
4181             playSound('ui');
4182         });
4183     }
4184
4185     if (demoScale && animationDemo) {
4186         demoScale.addEventListener('click', () => {
4187             if (!animationsEnabled) return;
4188
4189             animationDemo.style.transform = 'scale(0.5)';
4190             animationDemo.style.opacity = '0';
4191             setTimeout(() => {
4192                 animationDemo.textContent = 'Animation d\'échelle';
4193                 animationDemo.style.transform = 'scale(1)';
4194                 animationDemo.style.opacity = '1';
4195             }, 500);
4196             playSound('ui');
4197         });
4198     }
4199 }

```

```

4200 // Configuration des effets sonores de démonstration
4201 function setupSoundDemo() {
4202     const soundSuccess = document.getElementById('soundSuccess');
4203     const soundError = document.getElementById('soundError');
4204     const soundNotification = document.getElementById('soundNotification');
4205     const soundsEnabled = document.getElementById('soundsEnabled');
4206
4207     if (soundSuccess) {
4208         soundSuccess.addEventListener('click', () => {
4209             playSound('success');
4210         });
4211     }
4212
4213     if (soundError) {
4214         soundError.addEventListener('click', () => {
4215             playSound('error');
4216         });
4217     }
4218
4219     if (soundNotification) {
4220         soundNotification.addEventListener('click', () => {
4221             playSound('notification');
4222         });
4223     }
4224
4225     if (soundsEnabled) {
4226         soundsEnabled.addEventListener('change', () => {
4227             window.soundsEnabled = soundsEnabled.checked;
4228         });
4229     }
4230 }
4231
4232
4233 // Gestionnaire de notifications
4234 function showNotification(message) {
4235     const notification = document.getElementById('notification');
4236     notification.textContent = message;
4237     notification.classList.add('show');
4238
4239     setTimeout(() => {
4240         notification.classList.remove('show');
4241     }, 3000);
4242 }
4243
4244 // Mise en place des paramètres accessibilité
4245 function setupAccessibility() {
4246     const highContrastCheckbox = document.getElementById('settingHighContrast');
4247     const largeTextCheckbox = document.getElementById('settingLargeText');
4248     const autoTTSCheckbox = document.getElementById('settingAutoTTS');
4249     const animationsCheckbox = document.getElementById('settingEnableAnimations');
4250     const hideContainersCheckbox = document.getElementById('settingHideBanners');
4251
4252     // Contraste élevé
4253     if (highContrastCheckbox) {
4254         highContrastCheckbox.addEventListener('change', () => {
4255             if (highContrastCheckbox.checked) {
4256                 document.body.classList.add('high-contrast');
4257             } else {
4258                 document.body.classList.remove('high-contrast');
4259             }
4260             playSound('ui');
4261         });
4262     }
4263
4264     // Texte agrandi
4265     if (largeTextCheckbox) {
4266         largeTextCheckbox.addEventListener('change', () => {
4267             if (largeTextCheckbox.checked) {
4268                 document.documentElement.style.setProperty('--font-size-base', `calc(1rem + 0.5vw)`);
4269             } else {
4270                 document.documentElement.style.setProperty('--font-size-base', `calc(0.8rem + 0.5vw)`);
4271             }
4272             playSound('ui');
4273         });
4274     }
4275
4276     // Lecture automatique du texte
4277     if (autoTTSCheckbox) {
4278         autoTTSCheckbox.addEventListener('change', () => {
4279             // On stockerait cette préférence pour l'utiliser lors de l'affichage des diapositives
4280             playSound('ui');
4281         });
4282     }
4283
4284     // Activer/désactiver les animations
4285     if (animationsCheckbox) {
4286         animationsCheckbox.addEventListener('change', () => {
4287             animationsEnabled = animationsCheckbox.checked;
4288             playSound('ui');
4289         });
4290     }
4291
4292     // Masquer les bandeaux
4293     if (hideContainersCheckbox) {
4294         hideContainersCheckbox.addEventListener('change', () => {
4295             if (hideContainersCheckbox.checked) {
4296                 document.getElementById('mainContainer').classList.add('hide-banners');
4297                 bannersVisible = false;
4298             } else {
4299                 document.getElementById('mainContainer').classList.remove('hide-banners');
4300                 bannersVisible = true;
4301             }
4302             playSound('ui');
4303         });
4304     }

```

```

4305 }
4306
4307 // Gestion des boutons d'expansion de section
4308 function setupSectionExpansion() {
4309     const expandSectionButtons = document.querySelectorAll('.expand-section-button');
4310     const sectionModal = document.getElementById('sectionModal');
4311     const sectionModalTitle = document.getElementById('sectionModalTitle');
4312     const sectionModalBody = document.getElementById('sectionModalBody');
4313     const closeModal = document.getElementById('closeModal');
4314
4315     expandSectionButtons.forEach(button => {
4316         button.addEventListener('click', (event) => {
4317             // Empêcher la propagation pour éviter de cliquer sur la section
4318             event.stopPropagation();
4319
4320             // Obtenir les données de section
4321             const sectionId = button.getAttribute('data-section');
4322             const sectionContainer = button.closest('.section-container');
4323             const sectionTitle = sectionContainer.querySelector('.section-title').textContent;
4324             const sectionContent = sectionContainer.querySelector('.section-content').innerHTML;
4325
4326             // Remplir le modal avec les données de la section
4327             sectionModalTitle.textContent = sectionTitle;
4328             sectionModalBody.innerHTML = sectionContent;
4329
4330             // Afficher le modal
4331             sectionModal.style.display = 'flex';
4332             playSound('ui');
4333         });
4334     });
4335
4336     // Fermer le modal
4337     closeModal.addEventListener('click', () => {
4338         sectionModal.style.display = 'none';
4339         playSound('ui');
4340     });
4341
4342     // Fermer le modal si on clique en dehors du contenu
4343     sectionModal.addEventListener('click', (event) => {
4344         if (event.target === sectionModal) {
4345             sectionModal.style.display = 'none';
4346             playSound('ui');
4347         }
4348     });
4349 }
4350
4351 // Gérer la sauvegarde et chargement de la progression
4352 function setupProgressManagement() {
4353     const btnSaveProgress = document.getElementById('btnSaveProgress');
4354     const btnLoadProgress = document.getElementById('btnLoadProgress');
4355
4356     if (btnSaveProgress) {
4357         btnSaveProgress.addEventListener('click', () => {
4358             saveProgress();
4359             showNotification('Progression sauvegardée !');
4360             playSound('success');
4361         });
4362     }
4363
4364     if (btnLoadProgress) {
4365         btnLoadProgress.addEventListener('click', () => {
4366             loadProgress();
4367             playSound('ui');
4368         });
4369     }
4370
4371     // Tentative de chargement automatique au démarrage
4372     if (window.localStorage) {
4373         const savedProgress = localStorage.getItem('presentationProgress');
4374         if (savedProgress) {
4375             lastSavedProgress = JSON.parse(savedProgress);
4376             showNotification('Progression précédente disponible');
4377         }
4378     }
4379 }
4380
4381 // Sauvegarder la progression
4382 function saveProgress() {
4383     if (window.localStorage) {
4384         const progress = {
4385             currentSlide: currentSlide,
4386             score: userScore,
4387             completedSections: [], // On pourrait suivre les sections complétées
4388             timestamp: new Date().toISOString()
4389         };
4390
4391         localStorage.setItem('presentationProgress', JSON.stringify(progress));
4392         lastSavedProgress = progress;
4393
4394         console.log('Progression sauvegardée');
4395     }
4396 }
4397
4398 // Charger la progression
4399 function loadProgress() {
4400     if (lastSavedProgress) {
4401         showSlide(lastSavedProgress.currentSlide);
4402         userScore = lastSavedProgress.score || 0;
4403         document.getElementById('scoreValue').textContent = userScore;
4404
4405         showNotification(`Progression chargée : diapositive ${lastSavedProgress.currentSlide + 1}`);
4406     } else {
4407         showNotification('Aucune progression sauvegardée');
4408     }
4409 }

```

```

4410
4411 // Mise en place du jeu Memory
4412 function setupMemoryGame() {
4413     const memoryGame = document.getElementById('memoryGame');
4414     if (!memoryGame) return;
4415
4416     const cards = memoryGame.querySelectorAll('.memory-card');
4417     let hasFlippedCard = false;
4418     let lockBoard = false;
4419     let firstCard, secondCard;
4420
4421     function flipCard() {
4422         if (lockBoard) return;
4423         if (this === firstCard) return;
4424
4425         this.classList.add('flipped');
4426
4427         if (!hasFlippedCard) {
4428             // Premier clic
4429             hasFlippedCard = true;
4430             firstCard = this;
4431             return;
4432         }
4433
4434         // Second clic
4435         secondCard = this;
4436         checkForMatch();
4437     }
4438
4439     function checkForMatch() {
4440         // Vérifier si les cartes correspondent
4441         const isMatch = firstCard.getAttribute('data-card') === secondCard.getAttribute('data-card');
4442
4443         isMatch ? disableCards() : unflipCards();
4444     }
4445
4446     function disableCards() {
4447         firstCard.removeEventListener('click', flipCard);
4448         secondCard.removeEventListener('click', flipCard);
4449
4450         // Les cartes correspondent
4451         playSound('success');
4452         updateScore(10);
4453
4454         resetBoard();
4455     }
4456
4457     function unflipCards() {
4458         lockBoard = true;
4459
4460         // Les cartes ne correspondent pas
4461         playSound('error');
4462
4463         setTimeout(() => {
4464             firstCard.classList.remove('flipped');
4465             secondCard.classList.remove('flipped');
4466
4467             resetBoard();
4468         }, 1500);
4469     }
4470
4471     function resetBoard() {
4472         [hasFlippedCard, lockBoard] = [false, false];
4473         [firstCard, secondCard] = [null, null];
4474     }
4475
4476     // Attachement des événements
4477     cards.forEach(card => card.addEventListener('click', flipCard));
4478 }
4479
4480 // Mise en place du bouton d'aide
4481 function setupHelpButton() {
4482     const btnHelp = document.getElementById('btnHelp');
4483     const showHelp = document.getElementById('showHelp');
4484     const closeHelp = document.getElementById('closeHelp');
4485     const helpPanel = document.getElementById('helpPanel');
4486
4487     if (btnHelp) {
4488         btnHelp.addEventListener('click', toggleHelp);
4489     }
4490
4491     if (showHelp) {
4492         showHelp.addEventListener('click', toggleHelp);
4493     }
4494
4495     if (closeHelp) {
4496         closeHelp.addEventListener('click', toggleHelp);
4497     }
4498 }
4499
4500 // Gérer les boutons d'export
4501 function setupExportButtons() {
4502     const exportPDFBtn = document.getElementById('btnExportPDF');
4503     const exportNotesBtn = document.getElementById('btnExportNotes');
4504     const exportHTMLBtn = document.getElementById('btnExportHTML');
4505     const exportZIPBtn = document.getElementById('btnExportZIP');
4506
4507     if (exportPDFBtn) {
4508         exportPDFBtn.addEventListener('click', () => {
4509             showNotification('Export PDF simulé - Fonctionnalité démo');
4510             playSound('ui');
4511         });
4512     }
4513
4514     if (exportNotesBtn) {

```

```

        exportNotesBtn.addEventListener('click', () => {
            showNotification('Export des notes simulé - Fonctionnalité démo');
            playSound('ui');
        });
    });

    if (exportHTMLBtn) {
        exportHTMLBtn.addEventListener('click', () => {
            showNotification('Export HTML simulé - Fonctionnalité démo');
            playSound('ui');
        });
    }

    if (exportZIPBtn) {
        exportZIPBtn.addEventListener('click', () => {
            showNotification('Export ZIP simulé - Fonctionnalité démo');
            playSound('ui');
        });
    }
}

// Initialisation des connections de carte mentale
function initMindMap() {
    const mindMap = document.getElementById('navigationMindMap');
    if (!mindMap) return;

    // Créer des connexions entre les noeuds
    const nodes = mindMap.querySelectorAll('.mind-map-node');
    const center = nodes[0];
    const centerRect = center.getBoundingClientRect();
    const centerX = centerRect.left + centerRect.width / 2;
    const centerY = centerRect.top + centerRect.height / 2;

    // Pour chaque noeud autre que le centre, créer une connexion
    for (let i = 1; i < nodes.length; i++) {
        const node = nodes[i];
        const nodeRect = node.getBoundingClientRect();
        const nodeX = nodeRect.left + nodeRect.width / 2;
        const nodeY = nodeRect.top + nodeRect.height / 2;

        // Crée une ligne de connexion
        const connection = document.createElement('div');
        connection.className = 'mind-map-connection';

        // Calculer l'angle et la longueur
        const dx = nodeX - centerX;
        const dy = nodeY - centerY;
        const length = Math.sqrt(dx * dx + dy * dy);
        const angle = Math.atan2(dy, dx) * 180 / Math.PI;

        // Positionner la ligne
        connection.style.width = `${length}px`;
        connection.style.transform = `rotate(${angle}deg)`;
        connection.style.left = `${centerX - mindMap.getBoundingClientRect().left}px`;
        connection.style.top = `${centerY - mindMap.getBoundingClientRect().top}px`;

        mindMap.appendChild(connection);
    }
}

// Initialisation du système de notifications
function setupNotifications() {
    const requestNotif = document.getElementById('requestNotif');
    const testNotif = document.getElementById('testNotif');

    if (requestNotif) {
        requestNotif.addEventListener('click', () => {
            if ('Notification' in window) {
                Notification.requestPermission().then(function(permission) {
                    if (permission === 'granted') {
                        showNotification('Notifications activées !');
                    }
                });
            } else {
                showNotification('Notifications non supportées dans ce navigateur');
            }
            playSound('ui');
        });
    }

    if (testNotif) {
        testNotif.addEventListener('click', () => {
            if ('Notification' in window && Notification.permission === 'granted') {
                new Notification('Test de notification', {
                    body: 'Ceci est une notification de test',
                    icon: '');
            } else {
                showNotification('Veuillez activer les notifications d\'abord');
            }
            playSound('notification');
        });
    }
}

// Fonction pour initialiser l'état de connexion
function setupConnectionStatus() {
    const connectionStatus = document.getElementById('connectionStatus');
    const connectionStatusText = document.getElementById('connectionStatusText');

    if (connectionStatus && connectionStatusText) {
        // Mise à jour initiale
        connectionStatusText.textContent = navigator.onLine ? 'En ligne' : 'Hors ligne';
        connectionStatus.style.background = navigator.onLine ? '#ddd' : '#aaa';
    }
}

```

```

4620 // Écouteurs d'événements pour les changements de connectivité
4621 window.addEventListener('online', () => {
4622     connectionStatusText.textContent = 'En ligne';
4623     connectionStatus.style.background = '#ddd';
4624     showNotification('Connexion rétablie');
4625     playSound('success');
4626 });
4627
4628 window.addEventListener('offline', () => {
4629     connectionStatusText.textContent = 'Hors ligne';
4630     connectionStatus.style.background = '#aaa';
4631     showNotification('Connexion perdue - Mode hors ligne activé');
4632     playSound('notification');
4633 });
4634 }
4635
4636
4637 // Initialisation du mode sombre/clair
4638 function setupDarkMode() {
4639     const themeToggle = document.getElementById('themeToggle');
4640
4641     if (themeToggle) {
4642         themeToggle.addEventListener('change', toggleDarkMode);
4643     }
4644 }
4645
4646 // Configuration du bouton de chargement des ressources
4647 function setupResourceDownload() {
4648     const downloadBtn = document.getElementById('downloadResources');
4649
4650     if (downloadBtn) {
4651         downloadBtn.addEventListener('click', () => {
4652             // Simuler un chargement
4653             const loadingIndicator = document.getElementById('loadingIndicator');
4654             loadingIndicator.style.display = 'flex';
4655
4656             setTimeout(() => {
4657                 loadingIndicator.style.display = 'none';
4658                 showNotification('Ressources téléchargées avec succès');
4659                 playSound('success');
4660             }, 1500);
4661         });
4662     }
4663 }
4664
4665 // Configuration des boutons pour obtenir le certificat
4666 function setupCertification() {
4667     const getCertificateBtn = document.getElementById('getCertificate');
4668
4669     if (getCertificateBtn) {
4670         getCertificateBtn.addEventListener('click', () => {
4671             if (userScore >= 50) {
4672                 showNotification('Félicitations ! Votre certificat est disponible');
4673                 playSound('success');
4674             } else {
4675                 showNotification('Vous devez obtenir au moins 50 points pour recevoir votre certificat');
4676                 playSound('error');
4677             }
4678         });
4679     }
4680 }
4681
4682 // Closing help when clicking elsewhere
4683 document.addEventListener('click', (event) => {
4684     const helpPanel = document.getElementById('helpPanel');
4685     const btnHelp = document.getElementById('btnHelp');
4686
4687     if (helpVisible &&
4688         helpPanel &&
4689         event.target !== btnHelp &&
4690         !btnHelp.contains(event.target) &&
4691         !helpPanel.contains(event.target)) {
4692         toggleHelp();
4693     }
4694
4695     const summaryPanel = document.getElementById('summaryPanel');
4696     const btnSummary = document.getElementById('btnSummary');
4697
4698     if (summaryVisible &&
4699         summaryPanel &&
4700         event.target !== btnSummary &&
4701         !btnSummary.contains(event.target) &&
4702         !summaryPanel.contains(event.target)) {
4703         toggleSummary();
4704     }
4705
4706     const settingsPanel = document.getElementById('settingsPanel');
4707     const btnSettings = document.getElementById('btnSettings');
4708
4709     if (settingsVisible &&
4710         settingsPanel &&
4711         event.target !== btnSettings &&
4712         !btnSettings.contains(event.target) &&
4713         !settingsPanel.contains(event.target)) {
4714         toggleSettings();
4715     }
4716 });
4717
4718 // Configuration des événements de paramètres
4719 function attachSettingsEvents() {
4720     const btnSettings = document.getElementById('btnSettings');
4721     if (btnSettings) {
4722         btnSettings.addEventListener('click', toggleSettings);
4723     }
4724 }

```

```

4725 // Fermer le panneau avec Echap
4726 document.addEventListener('keydown', (e) => {
4727     if (e.key === 'Escape') {
4728         if (settingsVisible) toggleSettings();
4729         if (summaryVisible) toggleSummary();
4730         if (helpVisible) toggleHelp();
4731     }
4732 });
4733
4734
4735 // Fonction d'initialisation principale
4736 function init() {
4737     // Mises à jour
4738     updateDateTime();
4739     updateSlideCounter();
4740     updateNavButtons();
4741
4742     // Configuration des éléments de navigation
4743     setupSlideMap();
4744
4745     // Configuration des fonctionnalités interactives
4746     setupQuizzes();
4747     setupDragAndDrop();
4748     setupFillBlanks();
4749     setupMemoryGame();
4750     setupTimers();
4751     setupZoomableImages();
4752     setupAnimationDemo();
4753     setupSoundDemo();
4754     setupTextToSpeech();
4755     setupParallax();
4756
4757     // Configuration des fonctionnalités d'accessibilité et interface utilisateur
4758     setupAccessibility();
4759     setupDarkMode();
4760     setupLanguageSelector();
4761     setupHelpButton();
4762     setupSectionExpansion();
4763
4764     // Configuration des fonctionnalités de gestion et partage
4765     setupProgressManagement();
4766     setupExportButtons();
4767     setupNotifications();
4768     setupConnectionStatus();
4769     setupScoreSystem();
4770     setupResourceDownload();
4771     setupCertification();
4772
4773     // Configuration des événements UI
4774     attachSettingsEvents();
4775
4776     // Attacher les événements aux boutons de fonction
4777     document.getElementById('btnSummary').addEventListener('click', toggleSummary);
4778     document.getElementById('btnFullscreen').addEventListener('click', toggleFullscreen);
4779     document.getElementById('btnToggleBanners').addEventListener('click', toggleBanners);
4780
4781     // Gérer les changements d'état du plein écran
4782     document.addEventListener('fullscreenchange', () => {
4783         const btnFullscreen = document.getElementById('btnFullscreen');
4784         if (!document.fullscreenElement) {
4785             btnFullscreen.innerHTML = '<i class="fas fa-expand"></i>';
4786             btnFullscreen.title = 'Mode plein écran';
4787         }
4788     });
4789
4790     // Initialiser l'affichage - conserver la date/heure statique
4791     // setInterval(updateDateTime, 1000);
4792
4793     // Afficher la première diapositive
4794     showSlide(0);
4795
4796     // Initialiser les cartes mentales
4797     setTimeout(initMindMap, 500);
4798 }
4799
4800 // Lancer l'initialisation quand tout est chargé
4801 window.addEventListener('load', init);
4802
4803 </script>
4804 </body>
4805 </html>

```